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A REVIEW OF THE MEDICAL LITERATURE OF 1902.

INTERNAL MEDICINE.

IN CHARGE OF

JESSE S. MYER, M. D.

Progress in medicine does not necessarily imply a step forward, the advancement and demonstration of new theories, the invention of improved methods, the discovery of latent forces, etc., but often a retrograde movement—a retreat from old beliefs based upon false hypotheses, the discarding of time-worn customs and methods, and, above all, the timely interruption of so-called new ideas before they have been admitted to the archives of medical knowledge. Our review must necessarily deal in a measure with the latter class of literature.

It is a very difficult task in this age to present a conscientious review of a year's work in medicine, because of the immense number of publications that appear in all parts of the civilized world. One must necessarily confine one's self to the perusal of a few standard periodicals, with the hope that they will contain, either in the original or in abstract, the important revelations of the year. One realizes only in summing up the literature of a twelve months how much the chaff, how little the wheat. There seems to be a mad rush to print, with "quantity, not quality," the motto. The "demand" for articles is created through the promiscuous establishment of medical journals whose prime object is not altogether the advancement of medicine; the "supply" is often furnished by those who have their own interests at heart, rather than those of their readers.

We shall take up here what we consider to be some of the leading topics worthy of particular mention.

About a year ago Loeffler published an article entitled "A New Treatment for Carcinoma," recommending inoculations with the malaria plasmodia as a possible cure. His recommendations were based upon the statements of Hippocrates and Wenceslaus Trnka de Krzowitz. The former maintained that those who had quartan fever would not have epilepsy, and that if quartan fever developed in those with epilepsy the latter would disapper; the latter in 1775 reported a case of cancer of the breast cured within a few weeks by the development of a double tertian fever. Loeffler suggests that with our present knowledge of malaria, we are in a position to utilize it therapeutically. The disease can be produced by the introduction under the skin of the blood of patients thus affected, or through mosquitoes that have sucked the blood of malarial patients. On the other hand, the disease can be promptly counteracted with quinine.

Other infections have been recommended for the cure of carcinoma, and in a few cases satisfactory results have been claimed, but in these instances the curative agent itself was a dangerous one. Loeffler thinks it possible that the increase of carcinoma in middle Europe bears some relationship to the disappearance of malaria. He states, too, that the literature indicates that carcinoma rarely, if ever, occurs in the tropics, and that physicians of long experience there have never seen cancer.

These statements from Loeffler elicited prompt responses from many physicians practicing in the tropics, who maintain, almost unanimously, that the theory is based on false hypotheses. Spitzly, Prochnik, Breitenstein and others state from observations based on long experience, that carcinoma in the tropics is by no means an infrequent occurrence. They have observed carcinoma and malaria simultaneously in the same person, carcinoma in those who have had malaria, etc., and have never noticed that the growth is influenced, either in course or extent, by the infection. Goldsmith, who lived in Madeira, a subtropical region, for twenty-six years, states that endemic malaria is absolutely unknown there, and that carcinoma is a great rarity. He suggests that if there were a definite relationship between carcinoma and malaria, the former would be more frequent there.

Loeffler's assumptions seem to be groundless, having been based entirely upon the statement of a physician who flourished in 1775; at any rate, reports thus far do not bear him out.

At different times different inoculations have been suggested as a possible cure for carcinoma. Among these tuberculosis and erysipelas may be mentioned. Rokitansky maintained that carcinoma and tuberculosis never occurred in the same person. Baumgarten reported a case in which inoculations with tubercle bacilli were used in the effort to cure an otherwise incurable case of carcinoma. The cultures were taken from bovine tuberculosis, and their introduction into the organism brought about no changes, either good or bad, in the condition of the patient. Tuberculosis did not result from the inoculation.

The statement of this case was published in corroboration of Koch's theories, presented about a year ago, with reference to the relationship of human and bovine tuberculosis. At the British Tuberculosis Congress, Koch created quite a sensation by maintaining that human tuberculosis differs from bovine tuberculosis, and cannot be transmitted to cattle. A series of experiments were reported, in which he endeavored to prove that cattle inoculated with the bacilli of human tuberculosis would not themselves develop tuberculosis. Though he could not demonstrate the converse, using human beings as subjects, he believed that such was the fact. It is feared by those to whom these experiments were not conclusive that much harm might result from such radical expressions from the greatest living authority on tuberculosis. For Koch said: "The extent of infection by the milk and flesh of tuberculous cattle and the butter made from the milk is hardly greater than that of hereditary transmission, *and I therefore do not deem it advisable to take any measures against it.*" Whether Koch's views were right or wrong, the medical world seems to have taken a very conservative view of the subject. They are evidently not willing to sacrifice their long-cherished theories, though unable to find any weak points in the chain of evidence presented. The past year has witnessed practically the same precautions that have always been observed with reference to the transmission of tuberculosis

from the cow to man. It is well, too, that such conservatism has been universally practiced, even in the face of the unqualified recommendations of such an authority as Koch.

There is yet much to be learned concerning the biologic characteristics of the tubercle bacillus. It is maintained by no less an authority than Weichselbaum that practically all of the bacilli which resist mineral acids, such as the timothy and butter bacillus, that of bovine tuberculosis, and those found in the abdominal tumors of certain fish, etc., belong to the same family as does the tubercle bacillus. It is quite possible that under certain surroundings these different varieties assume different properties. It behooves us, therefore, to take every possible precaution to prevent the spread of tuberculosis.

The proper disposition and treatment of tuberculosis among the poorer classes, who cannot seek climatic changes, has long been a serious problem. It is well recognized that there is but one way to eventually stamp out the disease, and that is through the prompt and thorough isolation of every case as it presents itself. This, however, is in a great measure impracticable, and could only be accomplished through the strictest legislation. An important step has been taken in the right direction by the establishment in some countries of public sanitoriums. England and Germany have been foremost in the establishment of such institutions, and have, in a measure, made it a matter of national interest. Concerted action on the part of all nations could do much toward limiting the ravishes of this dreaded disease. The erection of sanitoriums would be the first step toward the goal desired.

The diagnostic significance of the application of the principles of the Widal reaction in tuberculosis has been widely discussed during the year just ended, and very conclusive evidence has been presented in opposition to the views first promulgated by Arloing and Courmont. It will be remembered that these authorities maintained that the agglutination test in tuberculosis was a diagnostic aid of great significance. They showed through a series of experiments that the blood serum of an animal treated with tuberculin or an attenuated culture of tubercle bacilli, as well as the serum from tuberculous individuals, would cause agglutination of tubercle bacilli in an especially prepared culture. This announcement met with much enthusiasm and received the attention of the leading investigators along these lines. One can readily see the great advantage that would come from a method that would permit of an early diagnosis in tuberculosis. Unfortunately, the results of the investigations of very competent authorities during the past twelve months do not correspond with those of the French observers. Koch considers the test entirely inadequate for the early diagnosis of human tuberculosis. He found that even the serum from healthy horses produces an agglutination of human, bovine and fowl tuberculosis. Gebhart and Torday found the reaction present in 75 per cent. of tuberculous patients and in 35 per cent. of non tuberculous individuals. DeGrazia found that the blood serum of tuberculous persons causes agglutination of various other bacilli, and, therefore, does not consider the reaction specific for tuberculosis. The observations of Donath, Masisus, Beco, Romberg and others agree fully with those just mentioned.

The tuberculin test, as a diagnostic measure, still has its followers; and justly so. Mazzoti compiled a most interesting series of cases, comprising several hundred, in which he employed tuberculin as a diagnostic aid in tuberculosis.

While greatly in favor of the application of this test, he does not maintain that it is infallible. He found that convalescent typhoids often give a positive reaction, though tuberculosis is absent. He is not entirely satisfied that all chlorotics that react in a positive way have tuberculosis. Sometimes the most advanced cases do not respond to the test, because the organism is so thoroughly accustomed to the poison. In two of his cases the reaction was negative after the removal of a tuberculous testicle. He recommends this procedure to surgeons in every case after the removal of a tuberculous organ, in order to determine whether there are other lesions present in the body.

The results of the Widal reaction continue satisfactory, and the statistics concerning the same are assuming a more consistent and tangible form. This is no doubt due to the fact that the technique, which is a most important factor, is more generally understood. Billings of the laboratory of the health department of the city of New York, in the examination of some some 2700 specimens, maintains that when there is well-marked clumping within ten minutes, with a serum diluted twenty times, there is positive evidence that typhoid fever exists or has existed in the individual in question. He considers those reactions as doubtful (1) when positive with a dilution of one to ten, and negative with a dilution of one to twenty; and (2) when the reaction is negative with a dilution of one to twenty, and incomplete with a dilution of one to ten.

Zupnik obtained in a very large number of cases most satisfactory results, and claims that when the test is properly made, no icterus is present, and a former typhoid can be excluded, a positive reaction speaks absolutely for the existence of typhoid.

The diagnosis of typhoid fever in children has been attracting much attention of late. The condition offers many difficulties in diagnosis. Frequently a diagnosis is impossible without the positive Widal. Gershel reported eighty-four cases of typhoid in children, with eighty-one positive results.

Jehle found the typhoid bacillus in the sputum of a number of cases of typhoid with slight bronchial complications. He recommends, as a prophylactic measure, more careful attention to the disposition of the sputum from such cases.

Higley maintains that the examination of the stools by Hiss' method gives more reliable results than the Widal reaction.

Seman, Polacco, and Gmelli report very interesting findings in the bacteriological examinations of the roseola spots of typhoid fever. The results of their findings may have a diagnostic as well as a pathological significance. In a large number of cases roseola spots were excised and subjected to careful examination. In nearly every case the bacilli of typhoid were found, and in all of these cases the Widal reaction was present. In a number of cases, however, the bacilli were demonstrated in the roseola spots before the Widal reaction was positive. In those cases of typhoid in which the spots appear as one of the first symptoms, it may be that this procedure will supplant the Widal reaction. At any rate such a harmless method cannot be overlooked. The chief goal toward which medical science is aiming is diagnosis—the earliest possible diagnosis.

Since the application of the Widal reaction as a diagnostic aid in typhoid fever, a large number of cases clinically identical with typhoid have failed to give the reaction. Up to this year it has been a difficult matter for the firm supporters of this test to account for these phenomena. Not only has the reaction been negative in many of these cases, but in some of them the presence of

the typhoid bacilli has not been demonstrable. Cases of this sort have been reported by Coleman and Buxton, Gwyn, Schottmueller, Cushing and others. It has been found that they are not cases of "typhoid fever, without the Widal reaction," as was long supposed, but that they are due to intermediate groups between the typhoid and colon bacilli—in other words, to "paratyphoid" bacilli. The investigations during the past year have been so conclusive that there can now be no doubt that in the future we must deal with a disease clinically identical with typhoid, but due to a different cause. Headache, malaise, the typical temperature curve, vomiting, diarrhea, hemorrhages from the bowel, rose spots, the diazo reaction, in fact all of the symptoms common to typhoid, have been found in these cases. The blood cultures, as well as the stools, have shown the presence of the "paratyphoid" or "paracolon" bacillus. Schottmueller recommends that the term "paratyphoid fever" be applied to the affection. The serum from the patients even in high dilutions causes agglutination very promptly of cultures taken from the blood, but does not cause agglutination of cultures of typhoid bacilli except in very low dilutions. Brill's statistics show 97.9 per cent. of positive Widal reaction in tpyhoid fever, and Gwyn's about 99.6 per cent. It has been suggested that a large percentage of the cases presenting well-defined symptoms of typhoid, yet giving a negative reaction to the Widal test, are cases of paratyphoid fever. It would seem advisable, therefore, that every laboratory should have cultures of the various paracolon forms for the application of the test in the event that the typhoid reaction is negative. Though right in theory, this does not work out in practice, according to Billings. He used cultures from cases of Cushing, Coleman, Buxton, and Smith, but failed to get positive results. He suggests the likelihood that the serum obtained from cases of paratyphoid infection reacts to its own particular organism. Though the advent of paratyphoid fever complicates in a measure the clinical laboratory methods, it enables us to explain a large number of cases hitherto a mystery. Fortunately the treatment of these cases differs in no way from that of typhoid fever.

Though the observations of A. v. Koranyi with reference to the functional diagnosis of the kidney, were published prior to the period which this review is intended to cover, much of the corroborative investigation has taken place in the past year. It is well, therefore, that information of such importance should be reiterated here. In his investigations concerning the sufficiency of the kidneys, Koranyi found that a disturbance of the function of these organs manifested itself chemically in two ways: In the first place, through a marked decrease of solids in the urine, and secondly through a retention of solid molecules in the blood. In other words, there is a diminution of the molecular concentration of the urine, and an increase of the same in the blood. This can be best determined through a determination of the freezing point of the liquids in question. The freezing points of the normal blood and urine being known, any variation from the normal would be due to an increase or decrease of the molecular concentration. He found in these experiments that when the freezing point of the urine is lowered to 0 to 1° C., and that of the blood raised to 0.58° C., there is a disturbance in the function of the kidney.

These observations have been corroborated by a number of competent authorities, chief among whom may be mentioned Casper, Richter and Kummel. Casper and Richter maintain that other methods for determining the functional

power of the kidneys, such as the determination of the eliminated nitrogenous substances, the decreased elimination of the chlorides, the methyleneblue test, etc., are insufficient, and cannot be compared with this method in point of reliability.

Kummel's observations are of a more practical nature, and the results obtained by him prove the efficiency of the method. He determined the freezing point of the blood in two hundred and sixty-five cases of surgical diseases of the kidneys. He performs no nephrectomy without first making this determination. The normal human blood has as its freezing point 0.56° C., lower than that of distilled water. He avoids operation when the freezing point of the blood is over 0.56° C. Even 0.58° to 0.59° are considered dangerous. 0.55° C. to 0. 56° C. may be considered within the normal boundaries. He maintains that nephrectomy in unilateral diseases need not be feared if these rules are observed. When there is any doubt as to which kidney is involved, or as to whether both kidneys are involved, ureteral catheterization should always be carried out. The freezing points of the segregated urines, together with the chemical and microscopical examinations will locate the trouble. There is no longer any question as to the present status of kryoscopy in both medicine and surgery. It seems to add the one link in the diagnostic chain that has long been desired. Casper and Richter have shown that normal kidneys eliminate practically the same quantity of chlorides and nitrogeneus substances, and the same quantity of sugar after injections of phlorydzin, and that the urine simultaneously voided from normal kidneys has relatively the same molecular concentration. Catheterization of the ureters renders it possible to obtain the urine from both kidneys simultaneously.

After the trouble has been located through these means, the kryoscopy of the blood indicates whether or not nephrectomy is permissible in unilateral cases. The chain is practically complete.

In recent numbers of the *Centralblatt fuer die Grenzgebieteder Medizin und Chirurgie*, Adrian gives a most admirable review of the literature bearing upon the catheterization of the ureters.

In spite of Edebohl's recommendations of surgical interference in chronic parenchymatous nephritis, these cases still remain within the domain of internal medicine. The reports from other sources are as yet too indefinite to justify our accepting unqualifiedly all that the author claims for his method of curing nephritis. In view of the pathological anatomy of the kidney in nephritis, it is difficult to reconcile one's self to the belief in a complete regeneration of the involved tissues.

In the second essay of his collection of clinical excerpts, v. Noorden claims that the routine use of milk as a food in acute nephritis is not justified. He states that quantities such as are frequently used, four and one-half to five litres, contain too much albumin and frequently phosphoric acid. He advises not more than one and one-half litres daily with carbohydrates. In interstitial nephritis, he sees no objection to the ingestion of both light and dark meats. In this he is borne out by Kaufman and Mohr, who find that the dark meats do not contain any more extractives than light meats, and that individuals excrete no larger quantities of nitrogenous substances after a dark meat diet than after a light meat diet.

This year has added its quota of new theories with reference to the causes of diabetes. DeRenzi attributes it to the lack of certain ferments in the organism

necessary to the oxidation of carbohydrates. He believes that the disposition of the carbohydrates depends upon the presence of certain ferments in the various glands and other tissues of the body. Through the increased function of these organs and their consequent exhaustion there is a lack of these ferments.

Blum would account for some cases of diabetes through an insufficiency of the suprarenal gland. In a series of experiments he succeeded in producing glycosuria in dogs and rabbits through the subcutaneous injections of suprarenal extract. He cannot offer a satisfactory explanation, however, for this phenomenon.

Through the work of Opie, Weichselbaum, Stangl and others the pathology of pancreatic diabetes has been greatly elucidated. There can be but little doubt that the so-called Islands of Langerhans in the pancreas have much to do with the conversion of carbohydrates in the organism. In fifteen cases of diabetes of pancreatic origin, Weichselbaum invariably found these areas involved; in some there was atrophy and vacuolization, in others sclerosis, calcification, etc.

D'Amato reports two cases of diabetes insipidus which were gradually transposed to diabetes mellitus. In the one case the transmission required several years, in the other but one year. There are but four cases of the kind reported in the literature.

Much work is being done on metabolism in diabetes. Little that is of practical interest has been added to our knowledge during the year, however.

In closing we would pay a passing tribute to the memory of four of the most renowned internalists of the century, who have died during the past year: Hugo v. Ziemssen, Carl v. Liebermeister, Adolf Kussmaul and Carl Gerhardt. They represented the highest art in the field of modern medicine, in which they were pioneers. Their heritage to posterity is a *science* of medicine, which they labored unceasingly to perfect.

SURGERY.

IN CHARGE OF

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To correctly summarize the advances in surgery, as expressed in the literature of the past twelve months, is by no means an easy task for several reasons. If the reviewer must confine himself to a reasonable amount of space, and desires to do more than mention the various subjects at his disposal, then he must leave out of consideration a very large number of themes altogether and consider briefly only those which, in his judgment, have been the favored objects of the most original research, and those in which the most practical advance has been made. The reviewer further naturally pays the most attention to those matters which interest him as an individual; and this may bias his opinion as to a choice of the subjects which, in the best interest of the general reader, should claim his attention. To economize space we have purposely avoided title reference to the articles treated; still this can cause no difficulty for the reader who may wish to consult the "original" of something in which he may be especially in-

terested, as any medical index will supply this knowledge in its author's index, or any desired title may be secured through the INTERSTATE JOURNAL.

All will agree that more progress has been made in the diagnosis and treatment of various affections of the kidney than in any other one field. The past year has seen, in the diseases of this organ, a palliative medical care change more and more into a radical treatment with the knife. But by this is to be by no means understood that the medical man has played a minor role in the transformation which was most welcome to him as well as to the surgeon.

Straus has shown that transient increase of pressure within the kidney capsule may lead to attacks of colic which closely simulate the trouble due to impeded outflow of urine, though nothing of the sort be the matter. The same author had occasion to do a nephropexy three times on the same organ within seven years; a tuberculosis was seen at the first operation, but at the last no traces of it were to be found, and the possibility of renal tuberculosis undergoing spontaneous cure was further proven by twelve examinations of the separated urines from the two kidneys of the individual in question. Schmieden has recently published the results of no less a master in this field than Schede, and expresses the latter's opinion that nephrectomy is to be preferred to nephrotomy for hydro- and pyo-nephrosis, while the opposite holds good for stone or pyelitis; the lumbar route is further to be preferred. Jessop, in the Bradshaw lecture, declares that out of twelve children on whom he operated for malignant tumor of the kidney but one lived as long as two and one-half years, and that none were cured. He considers the abdominal route the better for large growths, since it allows of a better pedicle being formed. Edebolds has created a great sensation by his startling claims that a number of varieties of nephritis can be cured by merely stripping the capsule from the organ; it is to be hoped that time will prove that he has accomplished much, but at present a number of authorities desire to know more about the diagnosis than has been furnished by our American surgeon. More exact and logical is the proposition of Lannender to bisect as well as decapsulate a kidney in which are miliary abscesses, and thus allow for the escape of urine and detritus from the necrotic patches. He has seen cases of acute complete suppression successfully combated in this way.

Absurd as it must seem at first thought, acceptance must be granted the dictum that the laparotomy is the only rational operative procedure in rupture of the kidney. Waldvogel has given the subject a careful study and assures us that the course of most of these cases teaches us the truth of the above. Of course, the explanation of this all is that an injury sufficiently severe to rupture the kidney, causes at the same time intra-peritoneal lesions which always demand immediate attention. Kuemmel, who has done more than all the other surgeons in the line of freezing blood and urine, tells us that pain and hemorrhage are the two main symptoms which should and do bring the kidney cases to the surgeon. Then the segregated urines alone can show us whether or not the affection is unilateral or not; a positive result always speaking for the conclusion that we have to do with something more than a medical nephritis, viz., stone, tumor, etc. We have been taught by Straus that the two healthy kidneys secrete exactly the same amount in a given time; this is the fundamental knowledge upon which our comparative examinations in pathological conditions must depend for their diagnostic value. Splitting of the kidney will now be undertaken

with a very different feeling since Langemak has shown us that every time this is done there is an extensive infarct formed, this depending for its size upon the dimensions and importance of the artery or arteries severed. The arteries of this organ are, in the strictest sense of the word, "end arteries," hence the experiments of Langemak could have but the one outcome. His work was done upon seventy-five rabbits, which were allowed to live from one-half hour to two hundred and twelve days after the splitting.

In trying to explain the occurrence of *cleft-palate*, we have been obliged to content ourselves with the knowledge that a tumor of the tongue or a mere misplacement of the unruly organ during intra-uterine existence may lead to this most unfortunate disfigurement; but lately, Fick has further cleared up the matter for us by his explanation that the embryo may keep a hand in such a position as to prevent the coalescence of the two lateral halves of the arch.

The matter of narcosis has attracted no little attention during the last year. There have been at least three devices prominently brought before the surgical public with the intention of mixing oxygen and chloroform in such proportion as to prevent the unpleasant and dangerous symptoms which arise from the use of chloroform alone.

Roth-Draeger claims that patients pass under the influence of the drug very rapidly and quickly when his machine is used, the pulse sinks slowly away, its beats remain strong and regular and he considers such a narcosis perfectly safe with any weak patient who could not possibly stand chloroform alone. Some very interesting work has been done by Horff with a new anesthetic which is injected under the skin. This author uses a mixture of morphine and scopolamine, making three injections, the first four hours, the second two hours, and the third a half an hour before the operation. He saw bad effects of the drugs in but one instance, that patient being affected with heart disease.

Crile has made some most interesting experiments with cocain and has been able to draw practical conclusions which would seem to have a decidedly practical value; for instance, he says that an injection of the drug into a nerve trunk prevents any shock which would otherwise be caused by severing the nerve beyond the point of injection, which is certainly of value in amputation. He has noticed further that the injection of cocain into the vagus nerve prevents cardiac inhibition when this nerve is irritated during operations on the neck. Cocain when injected into a vein causes contraction of the abdominal vessels and thus renders the handling of the intestines a much safer performance than it would otherwise be. Ethyl choride has found considerable favor during the past year as a general anesthetic. Malherbe has found that a patient can be brought under its influence in fifteen seconds. He has used it seven hundred times on patients between the ages of two months and sixty years, and has seen no dangerous effects. Other French investigators, especially Professor Girard, have called attention to the fact that this drug, like all others used for the same purpose, has certain dangers connected with it, so he says that it should not be used for more than five minutes at a time and that as little as possible of the drug be given; so it is seen from the above that the subject is by no means settled.

The matter of nourishing and stimulating patients who cannot take anything into the stomach has also been very properly before the surgical writers during the last twelve months. Reach has found that dextrin is more rapidly absorbed by the rectum than is any other substance with which he has experimented, it

having in this particular decided advantages over cane sugar and grape sugar.

The use of grape sugar in 5 per cent solution is warmly advocated by Lannender in cases where we have been in the habit of using merely saline solution. This last named author mixes the two, and has found that weak patients are nourished as well as stimulated thereby. The idea is certainly a good one and deserving of your careful consideration. More than the usual amount of attention has been paid to saline and the various use of the solution. Ochsner makes an extensive use of nytrol per rectum, giving his acute appendicitis patients such feeding as long as there is any tendency to nausea.

The various blood examinations for diagnostic purposes have been increasingly often. Schnitzler was the first to make the statement that all acute appendicitis cases presenting decided leucocytosis, are purulent. On the other hand, he says there are cases of acute perforation with no pus and consequently no leucocytosis, but no one doubts that these cases are the proper subjects for surgical treatment.

Much that is instructive as well as of practical value has been determined concerning abdominal drainage, which will be taken up more particularly in connection with new advances in the surgery of the abdomen.

The various writers are still completely at variance regarding the matter of abdominal drainage. The one elevates the head of the bed while another urges the patient to have the foot of the bed high; thus it is plain that the two are not endeavoring to work in the same direction.

One says to flush the cavity with salt solution, while the other says to dry it out; one advises us to make counter openings behind, while the other says it is a mistake.

One school says use tubes, while another thinks that the patient's only salvation is to be found in the use of gauze drains. Clark believes less in outward drainage than does any other of the past twelve months; his experiments convinced him that the natural and rational drainage of the abdominal cavity is inward; that is, through the diaphragm, and he has shown that small, solid particles are absorbed by the peritoneum in a very short time, and are distributed to almost all parts of the body. He says that there is a steady flow toward the chest, no matter what position the body may be in. He believes that a great many germs may be in this way distributed to different parts of the body without doing the patient any harm, and he considers it a mistake to do anything calculated to interfere with the process. He washes out the cavity and leaves a large amount of saline solution therein, claiming that next to nothing is accomplished by attempting to drain in an outward direction.

Many studies of the lymphatics have been made during the past year. One of the nicest articles on the excision of the nodes in the neck, which has appeared in the recent past, is that by Mitchell; there is nothing decidedly new in it, but the descriptions and illustrations render this difficult operation comparatively easy. Experience recently gained in v. Bergmann's clinic teaches that general miliary tuberculosis may result from the removal of cervical nodes similarly involved; this was observed in three cases, and it would seem from a study of the literature that no similar ones have been described previously. Italian investigators have found that it is possible to cause lymphatic disease by rubbing tubercle bacilli into the intact skin or mucous membrane; in this case the degree of general involvement depends upon the dose. It is possible, say

the investigators, to gradually increase the response of the lymphatic nodes until a certain degree of immunity is attained.

There has not been the usual amount of study given to the subject of aneurism during the past twelve months. Vignolo finds that there is a decided tendency to spontaneous healing in arterio-venous aneurisms, it must be stated. Wiring, etc., seems to attract no more attraction.

On the subject of hernia some most interesting reports have been given out; of these the most extensive are those from the clinics of Albert, Czerny and Coley. All of these relate to the results of the Bassini method and surely attest to what can be accomplished in such cases. Estor has written an instructive article on strangulated hernia in children. He says that the mortality is less in them than in adults, and says he finds after waiting three or four days that the constriction is usually not as pronounced as in adult life.

Krieger has concluded after most extensive investigation of the subject that hernia cannot be cured after the twentieth year, and he as well as a large number of others agree that the main indication for operation, all other things being equal, is the patient's desire relative of his trouble.

A subject on which we have little information is that of the phrenic nerve in relation to injuries and disease.

In 1902 Schroeder published his studies in this line, and shows that the only symptoms of division of the nerve on one side are rapid breathing and increased height of the diaphragm. After three weeks of this rights itself. When both of these nerves were resected, an inverse type of abdominal respiration was seen, and the diaphragm was found at autopsy to be atrophic in the region supplied by the nerve which had been injured. He concludes from his experiment that this muscle is not absolutely necessary to respiration.

One interesting point has come up during the past year with regard to the cause of gastric ulcers. Schamer found that he could cause them by ligating and resecting operation of the omentum, which is not only interesting, but at the same time valuable as a step toward clearing up what has been a very obscure subject.

The surgery of the mediastinum has attracted some attention, though nothing absolutely original has been presented, but still one operation deserves a passing word. Poirier removed a sarcoma from the anterior mediastinum through a "U" shaped incision with the base above. He exposed the large vessels and other strictures in this region, but by blunt dissection was able to remove the growth with no serious consequences to the patient, thus proving that this region can safely be invaded if only a proper amount of care be taken in performing the operation.

The removal of tuberculous mesenteric nodes is certainly rare, and hence we give mention here to one such operation which was recently performed by Helferich. As may be expected, the blood supply of the intestines was so much interfered with that it was found necessary to remove 50 cm. There was a perfect recovery, and three and a half months latter the patient had gained twenty-four pounds. It seems that there are only two other such cases in the literature.

Some interesting work has been done upon the biliary passages, though it cannot be said that much that is really novel or original has been attempted or accomplished. Hans Kehr, it must be admitted, did something which he claims to have been the first to do, when he succeeded by a plastic operation in closing a large defect in the wall of the common duct. In this case the common

duct had been "angulated" by the traction which was necessary in exposing the gall-bladder for the removal of the latter; then in clipping the cystic duct a large part of the wall of the common duct was caught in the scissors. To remedy this latter, Kehr cut a pedunculated flap from the two outer coats of the stomach, and then swung it around and succeeded in sewing it so well in the new position that it healed there without a leak. The stomach wound was closed by a suture and healed without incident. Hildebrand reports an operation which, he writes, has been performed but seven times. In a case where a fistula had persisted for a long time, he made a cholecystogastrostomy, and cured his patient. In none of the seven cases was there any disturbance of the ordinary functions of either stomach or biliary apparatus. In consequence, Hildebrand feels justified in recommending this operation in all cases where adhesions prevent one from making a union with the small intestine. He no longer does the old operation which involves the colon, since we know how dangerous may prove the infection of the bile-ducts from the contents of the large bowel. Beck managed to control hemorrhage perfectly in the removal of a large angioma of the liver in the following ingenious manner: He tied the pedicle off with a rubber ligature, and then brought the stump outside to be treated in very much the same way as was formerly practiced upon the uterus after the removal of a fibroid. The patient recovered, though it naturally took a very long time. Then Beck made a number of interesting experiments on dogs, succeeding in resecting a large portion of the liver, and combating hemorrhage by using the borders of the abdominal wound to compress the pedicle, which was fastened between them by through-and-through sutures. These latter went through all the tissues to the skin, but it was sewn over the whole stump, thus making a primary closure. The idea is certainly worthy of a trial on the human. A good method of palpating the liver region has been recently proposed by Thomson. He has the patient sit on a chair and bend over forward until the forehead rests upon the back of another chair. In this position the abdominal muscles are so relaxed that much more is to be felt than in the ordinary postures that have been used for the examination of this part of the body. By way of justifying the removal of the gall-bladder for cancer, it may be well to cite the case recently reported by Woerner, in which he removed the bladder, the woman remaining free from recurrence for two and a half years, or up to the time at which she was shown. It is not only important, but interesting, to know the results of ligating the different blood vessels of the liver, and this matter has been worked out by Ehrhardt, who communicated the results of his experiments to the last congress of German surgeons. He showed that the ligation of large branches of the portal vein is without serious consequences. However, the same treatment of the parent trunk leads to death in a few hours. Ligation of a large branch of the hepatic artery leads to necrosis of a correspondingly large portion of liver tissue, and usually death of the animal results.

It is no exception of the general rule to say that this past year has been prolific as far as the literature of appendicitis is concerned. There have been a number of good ideas advanced and they are presented to the reader that some practical benefit may result. Rolenow made interesting experimental studies in the production of the disease in rabbits.

He found that various changes which we know can be brought about when the appendix is ligated, sharply twisted upon its axis or its blood supply cut

off. It is to be regretted that this interesting article is in the Russian language and that we have access only to an abstract. Sonnenburg has published some interesting data concerning the lung complication in the disease. In one thousand cases he saw but fifty times the results of thrombosis and embolism. His acceptation of it is the usual one, viz., that the veins in the vicinity of the field of operation, by being disturbed or stretched, cast into the general circulation plugs which have already formed in them. This happens when the operation is performed in the interval between attacks, and diagnosis is the first consideration, for the treatment depends upon it. The patient must be made to set up right away and have morphine for the pain, but under no circumstances heart tonics. Roux gives interesting points on the removal of the appendix during the interval, and fixes it as an absolute rule to wait at least six weeks after the last attack, and says that it was found necessary in one instance to wait a number of months when he wished to be sure to avoid pus. In six hundred and seventy operations reported by him there where but two deaths; surely a very good record. No one can be said to have enjoyed to the fullest the study of appendicitis from the surgical standpoint, who has not read the little short of dramatic description which Riedel gives concerning his experiences of the past few years in this line. He lays particular stress on the fact that clinically a case may be most patent, where indeed the only change that is ever found in the little organ must be discovered with the microscope. This would tend to make one feel guilty for criticising the surgeon who has removed an organ that was not buried in adhesions. As to a prognosis, with the belly open, Steinthal says that he lays great weight on the appearance of the gut; in an acute case, a well contracted intestine gives a far better outlook as far as recovery than does one in the opposite condition. Much more of interest upon this subject has been written than can be even mentioned here.

The subject of peritonitis has received a fair amount of attention and there have been brought to light a number of facts which deserve our earnest consideration in a paper on the progress made during the past year. Brunner showed that a certain amount of the stomach contents could be injected into the cavity of a rabbit without causing the animal's death. He found, however, that this was only true of the stomach of healthy people; when he injected material that was not acid in its reaction it took a very much smaller quantity to kill the animal, and when the material was taken from a cancer patient it took but very little to accomplish this.

Friedrich made quite an extensive study of the causes and treatment of peritonitis, and in his conclusions states that the usual process of draining, etc., is absolutely of no use if the extremities have become chilled, because these symptoms showed that the heat centers in the brain have already become so affected by the poisons that there is no possibility of them recovering.

In describing his method of drainage, Rehn says that it is a great mistake to attempt to accomplish this by keeping the cavity wide open, but prefers, on the other hand, to sew up everything excepting the opening which is necessary for tubes and gauze to go through, otherwise he claims that the intra-abdominal pressure will not be sufficient to drive out the pus, etc., contained.

Doyen writes that he relieves the intestinal stagnation by making the permanent opening in the upper part of the small bowel.

Where this has been properly done he has always seen the rapid disap-

pearance of the symptoms of a peritonitis which brought on the obstruction. The same point is taken by Heidenhian, who states very clearly that he has never seen a single case of recovery where the disease had become general. In his recent work on peritonitis, Lennender informs us that the parietal peritoneum is very sensitive, but that the viscera have no nerves for touch or pain, but when the attachments of these are stretched, then there is exquisite suffering. He considers that stomach and small intestine can be rendered practically sterile by the administration of sterilized food and by lavage. This is, however, not true of the colon.

As regards the stomach there is not very much that is really new to be recorded. Some valuable statistics have been collected, and in as far as they are always of value as a guide to the surgeon, a number of the most important will be offered. Langemamm examined one hundred and eighty-nine lymph nodes in twenty cases where the stomach had been taken out, and finds that the presence of cancer nodes is so rarely missed that it is necessary to remove them all in every case. It is not necessary that they should be enlarged; indeed, he found cancer in those which were not increased in size at all, and which certainly could not have been felt as enlarged.

Kroenlein gives a comparison of the results which have been gained in his practice by operative and non-operative treatment; his material consists of two hundred and sixty-four cases; in seventy-five of them he merely opens the abdomen to make the diagnosis, in seventy-four he made a gastroenterostomy, and in fifty of them he cut out part of the organ. He was able to keep in touch with 95 per cent. of his patients, and consequently has learned all that it is necessary to know about the results.

His conclusions are that in such cases, if no operation is done, the disease will lead to the patient's death in about twelve months; if an opening is made between stomach and intestines, life will be prolonged about three and a half months, and if a portion of the stomach is removed the patient's life will be prolonged about fourteen months. Some new work upon the stomach has been done by Reerink which has taught a number of valuable lessons in transplantation of large intestine into stomach defects. He found that it was absolutely necessary that the affected gut remain in connection with its owns vessels, and when this was the case that they kept it perfectly nourished. Further, as soon as it was cut off from its blood supply it became digested at once. This is certainly an interesting point and may be a step in the direction of explaining gastric ulcers, etc.

It is a grateful task to write of the progress that has been made in the surgery of the intestines during the twelve months just past, since the two leading surgeons in this field have seen fit to favor us with their results.

Of these two, Mikulicz states that in the acute obstruction produced by tumor it is far better to merely make a colostomy, and later, after the patient has recovered his strength, to cut out the diseased portion. In cancer of the large intestines he considers the operation at two sittings the normal procedure. Formerly he brought the tumor out of the abdominal cavity, and one or two days later cut it off. Now he removes it at once, and reunites the bowel at a later period by means of the crashing clamp. He warmly advises operation in these malignant cases, because he has seen patients remain healthy as long as fifteen years after operation.

The other of the two great men mentioned, Hochenegg, has published the results of a large number of cases, and he considers that the removal of tumors of the large intestines should be done only in the way described by the preceding surgeon, and says that this is for the best interests of the patient, and that his best results have been obtained by adhering to it.

It would be only a pleasure to write of what has been done on the heart, air passages, male genitalia and other special regions which have been the seats of original work, but further reviewing would carry us beyond the limits which must be imposed on an attempt of this nature.

THERAPEUTICS.

IN CHARGE OF

ALBERT E. TAUSSIG, M. D.

The year 1902 was not distinguished by any startling therapeutic advances. A large number of new drugs were offered to the medical profession, but most of these still await confirmation of the beneficial effects claimed for them. Many therapeutic procedures advocated in past years have been carefully tested, and the claims of their adherents confirmed or disproved. The most significant and promising of the recent work in therapeutics concerns itself with serum-therapeutics and its related branches.

The value of antistreptococcus serum is still the subject of much dispute. A considerable number of cases of puerperal septicemia were reported during the past year in which the beneficial action of the serum was striking. The patient's temperature slowly falls, the pulse grows stronger, and the general condition markedly improves. Similar good results have been obtained in streptococcus pneumonia and in the mixed infection of pulmonary tuberculosis. On the other hand, other observers have failed to obtain any therapeutic effect from the serum. The cause of this divergence of opinion may be twofold. On the one hand, physicians do not sufficiently distinguish between a staphylococcus infection and one due to streptococci: it is manifestly the latter alone that can be favorably influenced by an antistreptococcus serum. Moreover, it is now certain that there are many species of streptococcus pyogenes, and it is highly probable that an anti-serum obtained from one species or group of species, while very efficient in septicemias due to the streptococci from which it was obtained, would fail when applied in cases of invasion by a different species. As yet, however, the subject is a very dark one, and requires further elucidation.

In an instructive paper read before the Berliner Medicinische Gesellschaft on April 23d of this year, Menzer reported his experience with antistreptococcus serum in acute and chronic articular rheumatism. As a result of his bacteriological investigation of over one hundred cases, he came to the conclusion that both acute and chronic articular rheumatism are due to a streptococcus infection, and are closely related to the common streptococcus anginas. He made his own serum, obtaining his infectious material from the tonsils of a rheumatic patient. The streptococci so obtained were grown on ascites bouillon, and with these cultures large animals were immunized in gradually increasing doses. The

serum obtained from these immunized animals is rich in antitoxin corresponding to streptococci obtained from the rheumatic patient. When injected into patients suffering from acute articular rheumatism, the serum caused a preliminary rise of temperature accompanied by an increase in the articular pain and swelling. This reaction disappeared in a few days, and the patient was discharged cured in one or two weeks. Relapses, so common after salicylate treatment, did not occur. Similar, if less striking, results were obtained in chronic articular rheumatism and in a case of pulmonary tuberculosis with mixed infection. Senator was able to confirm the good results obtained with Menzer's serum, but warns against drawing hasty conclusions in the therapy of acute articular rheumatism, since no disease is so apt to show sudden improvement or the reverse, independent of medication. One significant feature observed in Menzer's cases was the reaction following the injection. This proves that it is not a pure antitoxic serum, which should never produce such a reaction. Marmorek's antistreptococcus serum, however, which produces no reaction, is also quite valueless in rheumatism.

In scarlatina, the use of the antistreptococcus serum does not seem to have grown in favor, and the good results which the first experiments with this therapy promised have not been confirmed by later experience. An interesting suggestion regarding the therapy of this disease was made by Engel in connection with an unusually severe case. The resistance of the organism to infectious diseases depends upon the presence in the blood of two substances: the complement, present in normal blood, which has the power of destroying the infecting microorganism when attached to the latter by means of the second essential substance, the amboceptor, which is slowly increased in quantity during the course of the disease. Proceeding from the hypothesis that in fatal cases the cause of death might lie not, as is usually assumed, in the insufficient development of amboceptors, but in the absence or destruction of the constituent of normal blood, the so-called complement. Engel injected into a child desperately ill with scarlatina and diphtheria 8 c. c. of fresh normal human serum that he happened to have on hand. The effect was a strikingly good one, although an abscess formed (not at the spot where the normal serum had been injected) and had to be incised. The child made a prompt recovery. While definite conclusions cannot, of course, be drawn from a single case, the above observation should lead to further trials. It is of interest in this connection to observe that Wassermann was able to save guinea-pigs inoculated with a lethal dose of typhoid culture from death if he injected 3 c. c. of normal cattle serum. Whether such large doses—this would correspond to 150 c. c. of serum for a child weighing fifty pounds—are necessary in human beings can only be settled by experience.

On the whole, the attempt made in the past few years to treat typhoid fever with antitoxic serum must be said to have resulted in failure. The tpphoid bacillus does not secrete a soluble toxine as do the bacilli of diphtheria and tetanus, and accordingly it is not possible to produce an immunized animal with a blood serum rich in typhoid antitoxin. Two notable attempts have been made to overcome this difficulty. The most promising is that of Professor Wright of Dublin. He inoculates healthy human beings with a culture of typhoid bacilli sterilized by the addition of lysol or carbolic acid. Since it is the bodies of the bacilli themselves that contain the typhoid toxin, a certain amount of the latter is thus introduced into the organism and produces a febrile reaction, as in vac-

cination. The result is a relative immunity to typhoid fever, closely resembling the immunity following vaccination for small-pox. Wright°s method was tested on a rather extensive scale during the Anglo-Boer war with what were, on the whole, very satisfactory results. The reports on this subject are too extensive to be related in detail here; they may, most of them, be found in the various issues for 1902 of the *British Medical Journal*. A fair sample is the experience of Major Birt at Harrismith, in Natal. Of nine hundred and forty-seven cases of typhoid fever in uninoculated individuals, one hundred and thirty-five died, a mortality of 14 25 per cent. During the same period two hundred and sixty-three patients who had been inoculated with typhoid vaccine, for the most part six to eighteen months previously, contracted the disease. Eighteen of these cases proved fatal, a death rate of 6.8 per cent. Among the uninoculated the average duration of pyrexia was twenty-eight days; among the inoculated, fifteen days. In 24 per cent. of the former there occurred relapses, but in only 6 per cent. of the latter. No patient who had been inoculated less than eight months before he contracted the disease died. The results obtained elsewhere in South Africa have been similar, so that a certain amount of protection must be conceded to inoculation with Wright's vaccine.

The use of Jez's anti-typhoid extract is based on a somewhat different theory. Jez proceeds on the theory that, in the immunization of animals with typhoid bacilli the "typhoid antitoxin" is stored up, not in the blood serum, but in the cells of certain organs. His extract is prepared as follows: Rabbits were immunized by means of intraperitoneal injections of bouillon cultures of living typhoid bacilli, until the injection was no longer followed by a febrile reaction, showing that the animals had become immune. Two or three days after the injection they were killed; the thymus gland, spleen, bone marrow, brain and spinal cord were taken out, rubbed up with salt, alcohol, glycerin, a little phenol and some peptone and allowed to stand on ice for twenty-four hours. The mixture was then filtered and ready for use. With this filtrate Jez claimed to have treated eighteen cases of typhoid fever with uniformly and strikingly good results. On the whole, his results have been confirmed, at least to a certain extent, by later observers. Among others Eichhorst, of Zuerich, used the extract on twelve cases of typhoid fever. Most of the cases treated were free from fever after four or five days, and remained so. The improvement of their general condition was striking. Semi-conscious patients brightened visibly. The spleen, however, shrank more slowly and, therefore, the patients were kept on a liquid diet until this organ was no longer palpable; long, therefore, after they had been free from fever. In two cases relapses of brief duration occurred, for which also the anti-typhoid extract was used with good results. It would seem, then, that in Wright's vaccine we have a promising prophylactic agent against typhoid, and in Jez's extract an equally promising therapeutic agent.

Various attempts have been made from time to time to cure carcinoma by means of the artificial production of infectious diseases. Thus Fehleisen, proceeding from the observation that cancers sometimes disappear after an attack of erysipelas, has advised the inoculation in hopeless cases of the streptococcus of erysipelas. A number of successful results have followed the use of this method. It has, however, chiefly on account of the impossibility of controlling the erysipelas once set up, since been abandoned for the use of the toxins themselves.

Loeffler, in studying the statistics of carcinoma, believed that he could note an incompatibility of this disease and malaria: that countries or races that suffered greatly from malaria were relatively free from carcinoma, and *vice versa*. Accordingly he advised the artificial production of malaria, either by means of direct inoculation with malarial blood or by means of bites from infected mosquitoes, in cases of carcinoma. This article has resulted, during the past year, in the publication of great masses of statistics relating to the occurrence of these two diseases. Most of them seem to show the incorrectness of Loeffler's premises. Those portions of Italy, for instance, in which malaria is most prevalent, are by no means the ones freest from cancer. Even in the tropics, where malaria is universal and cancer rarely seen, this phenomenon must be referred to the unwillingness of the native women, who make up the bulk of cancer cases, to consult a European physician. On the other hand, in a recent meeting of the Hamburg Medical Society, Dr. Wagner reported a case in which extirpation of a sarcoma of the testicle had been followed by numerous metastases. Acting upon Loeffler's suggestion, the attending physician injected some defibrinated blood obtained from a malarial patient. Twenty-one days later the first chill occurred and the parasites were found in the blood. After an interruption, due to the fears of the patient, a second inoculation was made which again produced typical tertian malaria. The tumors diminished strikingly in size, but at the date of publication had not yet entirely disappeared. On the other hand, Dr. Lauenstein, at the same meeting, reported a similar attempt in a case of recurring mammary cancer, in which no positive effect could be seen from the malaria inoculation. The question as to the efficiency of malaria in curing or preventing cancer is thus still open, but does not seem promising.

Ever since the discovery in 1896 of the hemostatic virtues of gelatine, this drug has been administered hypodermically on a large scale, both for the cure of aneurism and as a therapeutic measure in hemorrhages of all kinds. Its efficiency for both of these purposes can no longer be questioned. In 1902, as during previous years, the number of reported cases cured or benefited by gelatin injections has grown steadily. The procedure is as follows: 1 or 2 g. of pure gelatine is dissolved with the aid of gentle heat in 100 g. physiological salt solution. The solution is then put in a steam sterilizer for one hour; 50 g., more or less, as the case may demand, are injected hypodermically. Unfortunately, the exposure of the gelatine solution to steam at 100° C. for one hour does not always suffice for the extinction of all spore-bearing micro-organisms, in particular of the tetanus bacillus. During the past year a large number of cases of tetanus following the hypodermic use of gelatine have been reported, and a number of observers, in particular Levy and Bruns, at Strassburg, and Schmiedicke, in Berlin, have, by means of an ingenious cultural device first suggested by Sanfelice, been able to demonstrate the presence of tetanus bacilli or spores on practically all dried gelatine. The question, therefore, that cries for solution is: "How can gelatine be freed from tetanus spores without interfering with its therapeutic value?" Ordinarily, tetanus spores are killed by steam at 100 in eight minutes. Either, therefore, tetanus spores obtained from different sources have a different power of resistance to heat, or in those cases in which tetanus followed the injection of gelatine, the sterilization of the latter was carelessly done. If Zibell is right in maintaining that the hemostatic power of gelatine lies in its possession of a soluble and easily absorbable combination of calcium, then we

can sterilize the gelatine as long as we wish, even at temperatures higher than 100° C., without interfering with its hemostatic power. If, however, the latter depends upon its gelatinizing property, prolonged sterilization or sterilization at high temperatures is not permissible. This problem still awaits solution.

In those cases of malaria in which quinine for one reason or the other cannot be given, our only refuge has until recently been one of the inorganic preparations of arsenic. The uncertainty of its action, however, and the need of giving doses so large that toxic effects may well be feared, has interfered very greatly with the usefulness of this drug. The organic preparations of arsenic, called cacodylates, have given more satisfactory results, but they too are neither quite certain in their action nor entirely non-toxic. Dr. Armand Gautier, however, has recently described a new cacodylate, which he claims is free from the faults of the other members of this group. It is a disodic-methylarsenate, formed by the action of methyl iodide on sodium arsenate in the presence of an alkali. It occurs in colorless crystals, soluble in water, contains 45 per cent. of arsenic and is entirely non-toxic. It can be given indifferently, by mouth or hypodermically. Its dose is from one-half to one and one-half grains daily, though three grains may be given with impunity. The drug, put on the market under the name of arrhenal, has been tried by Billet in North Africa on nine cases of severe malaria. Hypodermic injections of one to two grains were absorbed without pain and produced no constitutional disturbance. All nine cases recovered promptly. If further observations confirm Gautier's claim, arrhenal should become a valuable addition to our armamentarium.

A new and valuable local anesthetic has been brought before the medical world this year. It is called anesthesin and is a para-amido-benzoicacid-ester, a white, tasteless powder, slightly soluble in cold water, readily so in alcohol, ether, fats and oils. Its action resembles that of orthoform, to which it is chemically related, but it lacks the irritating property of the latter and is far less toxic. Huge doses are necessary to produce even a temporary illness in rabbits and no untoward effects have been observed in man. The drug has been thoroughly tested by v. Noorden. He administered it internally in gastric hyperesthesia and ulcer; for cough and dysphagia due to pharyngeal or epiglottic affections he gave the drug in tablets or troches, and as a spray in laryngeal hyperesthesia. As a salve it rendered good service in pruritus, especially in pruritus vulvæ due to diabetes mellitus; in eczema it practically eliminated the itching, and seemed even to have a beneficial action upon the eczema itself. In suppositories it acted well in cases of painful piles, but was inferior to opium in tenesmus due to proctitis. Bougies of anesthesin introduced into the bladder acted well in urinary tenesmus. The dosage is as follows: Salves with lanolin, 10 per cent.; suppositories, one-third to one grain in cocoa butter. As a spray, v. Noorden prescribes either 10 per cent. tragacanth emulsion diluted with water or a 3 per cent. solution in equal parts of absolute alcohol and water. Internally one-half to one grain was given two or three times daily, fifteen minutes before meals. Dr. Earp of Indianapolis reports cases of hemorrhoids, acute gastritis, gastralgia and perineal eczema in which the drug gave unmixed satisfaction. Other observers have reported similar results. Anesthesin will thus probably entirely replace the less satisfactory orthoform.

Some months ago Adamkiewicz and Kugel reported a number of cases of inoperable carcinoma treated by the injection of the former's cancroin with such

extraordinarily favorable results as to excite universal attention. These were followed by articles by Nothnagel and others, in part devoted to a destructive analysis of Adamkiewicz's cases and in part to the report of other cases not benefited by this treatment. All of these articles have been reviewed among the abstracts in a previous number of this journal. Jacoby, too, reports two cases of cancer in which the administration of cancroin did not retard the progress of the disease. Prof. v. Leyden and F. Blumenthal, on the other hand, have recently reported their results with a very similar preparation. The tumors of carcinomatous dogs were extirpated, hashed and the juice injected at frequent intervals for many weeks into rabbits. The serum of the latter was then injected into a carcinomatous dog, in whom the diagnosis had been certified by means of the microscope. After a number of injections, in the course of several weeks the tumor became smaller and semi-fluid. A microscopic examination revealed numerous leucocytes among the scanty tumor cells, cells showing fatty degeneration and fat globules. Under continued treatment the tumor disappeared entirely. They also expressed the fluid from a freshly extirpated canine cancer and injected this into another carcinomatous dog, in whom two tumors, each the size of a plum, could be palpated in the upper and lower portions of the rectum. After two months of this treatment a portion of the tumors began to grow smaller and softer. After five months both had almost entirely disappeared. The small remnant was cut out and proved to be unmistakable cancer. This encouraging result led them to try a similar method on human beings. They squeezed out of human cancer masses, aseptically cut out of the living patient a juice, which was used for injections after its harmlessness had been ascertained by means of animal experiment. It was used, however, only on cases of inoperable cancer so far advanced that their condition was hopeless. As was to have been expected, no distinctly favorable result was obtained in most of the cases. In two of them, however, it was noticeable that while the tumor itself remained unaltered, no metastases occurred and the indurated lymph glands in the vicinity disappeared. In a third case, a very decrepit woman of forty-two years, no growth of her tumor took place during the ten months she remained under observation, although upon her admission her condition had been so desperate as to promise a rapid ending. It would thus seem that in spite of the scoffs with which Adamkiewicz's reports have been received, it is not impossible that his method may somewhere contain a kernel of truth.

The number of new synthetic drugs that are continually placed on the market is legion. Of these one of the most interesting is "Theocin," a dimethylxanthin, which is identical with theophyllin. The latter is an alkaloid discovered in 1888 by Kossel in tea leaves, where it occurs in minute quantities. It is chemically closely allied to theobromin and caffein. The diuretic action of these two last substances has been known for some time. Theobromin, especially in combination with sodium salicylate (diuretin), or with sodium acetate (agurin—discussed in some detail in a recent number of this journal), has until recently been considered as our most powerful and most reliable diuretic. Nevertheless, theophyllin far surpasses both of these diuretics. Thus N. Ach found that while on the average diuretin causes 3.8 times as much urine to be excreted as before its administration, the activity of theophyllin should be represented by 6.3. This alkaloid has not hitherto been utilized in practice, however, because it occurs in such small quantities that its cost of production was excessive.

The Eberfeld Farbenfabriken have, however, recently produced this alkaloid synthetically (theocin) according to W. Traube's directions, thus producing an inexpensive drug, the diuretic efficiency of which is quite equal to that of the native theophyllin. The substance, by the way, is of particular scientific interest as being the first alkaloid produced by a purely synthetic process. Theocin is particularly effective in cardiac dropsy. Thus in one case, reported by Minkowski, (aortic insufficiency, dilatation of the left ventricle, albuminuria, edema of both legs), the urine after a single dose of 0.4 g. theocin rose from 820 c. c. daily to 7600 c. c. during the next day. The edema disappeared completely over night. In most cases a urinary secretion of from 3000 to 5000 c. c. daily can be obtained. Its main drawback is that it is somewhat irritating to the gastric mucosa. This may be somewhat obviated by giving the drug in dilute solution (e. g., 0.3 to 0.5 g. in a cup of hot tea) after meals. Where the stomach is very irritable the drug cannot well be given.

PATHOLOGY AND BACTERIOLOGY.

IN CHARGE OF

R. B. H. GRADWOHL, M. D.

The past year has been characterized by substantial advances in bacteriology and pathology. It takes years to witness great advances in this department of medicine. Innumerable workers the world over must put their contributions together, and the total will make a new era. The scientific investigators in this country are each year increasing in numbers, and consequently each year sees more and more scientific work coming from this side the Atlantic. Impetus has been given to original investigations in this land of late by the liberal scholarships founded by John D. Rockefeller. The men who have secured these scholarships have already brought out new and original ideas, notably the work of Duval in further demonstrating the specificity of the bacillus dysenteriæ for tropical bacillary dysentery, and that of Vedder, who claims that this self-same organism plays a role in producing the ordinary summer complaint of children.

The work along the line of finding a specific micro-organic cause for cancer has been followed up the past year, as in the year preceding. Ribbert places himself on record against the parasitic theory of cancer, nor does he believe cancer is caused by infecting cells. He argues for a pathology beginning in the connective tissue of an epithelial area, separating epithelial cells from their proper relations and stimulating their vegetative activity. Von Leyden, writing in the *Wiener Med. Wochenschrift*, May 17, 1902, calls attention to certain numerous conditions in plants, in which an amebic parasite is certainly demonstrated as a cause. Arguing for the parasitic origin, he thinks that the life history of the carcinoma, the clinical picture, the anemia, the increase of indican and the diazo all demonstrate some living parasitic cause. The author refers to dogs in which carcinoma has been experimentally produced. He gives a minute morphological description of an intracellular parasite which he thinks is the cause of cancer. A series of four papers appeared in the *Journal of Medical Research*, constituting

the second annual report of the cancer committee of Harvard. These papers took up the question of the relationship of blastomycetes to cancer. The conclusions of these investigators—Greenough, Tyzzer, Richardson, Weis and Nichols—are that the peculiar bodies seen in the protoplasm of cancer cells are not parasites nor the cause of the lesions, but probably are, in part at least, atypical stages of the process of secretion by glandular epithelium.

Among other writings on the etiology of cancer might be mentioned, first, that of Loeffler, who claims that there is some relationship between malaria and cancer—*i. e.*, that malarious-infected localities seem to prevent cancer among inhabitants of such places (which has been disproved); and, secondly, that of James Braithwaite of London, who claims that an excess of salt in our diet is responsible for cancer. He claims that savages who eat no salt do not have cancer, and that the eaters of pork and salted meats are subject to it; that the Jews, eating very little salt, are not subject to it. All of which can be taken *cum grano salis*.

The relationship between bovine and human tuberculosis has received due attention at the hands of pathologists during the past year. J. G. Adami, in the *Philadelphia Medical Journal*, February 22, 1902, believes that human tuberculosis is communicable to cattle, and *vice versa*. He believes that children become infected with tuberculosis from infected milk only in case of udder tuberculosis, when the milk contains the bacilli in large quantities. C. H. Cattle. *British Medical Journal*, February 22, 1902, states about the same as Adami. Theobald Smith, on the contrary, believing in the duality of the bovine and human tubercle bacillus, states that we cannot believe that transmission of bovine tuberculosis to man may take place until we isolate tubercle bacilli from particular cases having the characteristics of the bovine variety.

A great deal has been done in investigating the life habits and habitations of the mosquitoes of North America here of late. Cassidy and Boyne, *American Medicine*, May, 1902, describe five genera of North American mosquitoes. They do not believe that the classification as given by Howard, the entomologist in Washington, is quite comprehensive enough for our present information concerning the mosquito. They have found anopheles to be a country mosquito, but they have found it in clear running water as well as in stagnant water. It was, however, usually found in quiet, moss-grown spots in the running streams. Freezing for one hour or more did not hurt the larvæ. Henry B. Orr examined the bodies of the common night mosquito and found four forms of parasite in the mosquito. He believes that this parasite is not the cause of any disease in man. H. P. Johnson describes a new sporozoan parasite found in 80 per cent. of anopheles punctipennis that he examined in Massachusetts. He refers to its resemblance to malaria, and suggests it as a source of error.

An observation which has created merriment for the lay journalist, owing to misstatements in the public press, is that made by C. W. Stiles of the Department of Agriculture on a new species of hook-worm. The newspapers have referred to Stiles' discovery of the "germ of laziness." He studied the parasites in the cases of uncinarias observed by Claytor, Smith of Galveston, Texas, and Ashford of Porto Rico. He found that these specimens differed from uncinaria duodenalis of Europe, in that there are no hook-like teeth. These are replaced by a pair of semilunar plates. The eggs are larger, measuring forty by seventy-two microns. Stiles states in his article that he believes the prevalence of the

worm disease among the southern inhabitants is made manifest by their apathetic ways and general lazy character. It was for this reason that the newspapers unfortunately seized hold of the article and called the observation a discovery of the germ of laziness.

J. M. Beattie made extensive experiments with peritoneal injections of guinea-pigs with B. coli, B. typhosus, cholera spirillum, bacillus of dysentery, staphylococcus pyogenes aureus, bacillus tuberculosis, and also with foreign particles, in order to study the cells of inflammatory exudations as to their function and destiny, and also as to the origin of the mononuclear cells. The colon bacillus was used in most of the experiments. By means of a sterile capillary pipette, the peritoneal fluid was withdrawn at different periods, following inoculations with various organisms. Forty-four guinea-pigs were used in the experiments.

After an injection various cells appeared in the exudate. In the early stages, six to forty-eight hours, the exudate is clear, abundant, and contains large numbers of polymorphonuclear leucocytes. In non-fatal cases these diminish gradually after forty-eight to fifty-six hours and disappear entirely after five or six days. Excepting in leprosy and tuberculosis, these polymorphonuclear leucocytes are the main phagocytes. This exception is probably due to the slow growth of these bacilli and consequently a later leucocytosis. It is certain that there is a substance produced by the cells which is injurious to the life and activity of the bacilli, but it is doubtful whether it is produced by these leucocytes or the mononuclear cells. The activity of bacteria was impaired before ingestion by the cells. The polymorphonuclear cells are largely destroyed in the peritoneal fluid, either as free cells or in the interior of other cells. The coarsely granular eosinophile cells play no important part, at any rate in relation to bacteria. The mononucleated phagocytes are found at all stages, being most abundant after thirty-six hours. They are derived from the endothelium of serous membranes, of blood vessels, of lymph vessels and sinuses, large mononuclear leucocytes, and from the lymphoid tissue surrounding the vessels. They are ameboid and show marked vaculation of their protoplasms, which is probably an evidence of their secretory action, and not merely a degenerative change. They are markedly phagocytic to other cells, as well as to bacteria. These cells are largely destroyed in the peritoneal sac. None of the internal organs, so far as Beattie has been able to ascertain, appear to act as destroyers of or storehouses for these cells, except possibly the lymph glands. Great numbers of these cells are always found in the omentum. These mononuclear cells are the most important cells of inflammatory exudates. In cases of peritonitis the omentum must be looked upon as an important agent in protecting the individual from more general infection. The presence of a large number of these cells, if active, in inflammatory exudates is a favorable sign. The plasma cells, which Mallory suggests may produce the antitoxins of typhoid fever, are, he believes, nothing but these mononuclear cells. They can and do act as phagocytes, and are not confined to any special form of inflammation, but are most numerous in cases of bacterial or toxic infection.

A paper which promises to settle some of the mooted points in regard to the value of the colon bacillus as an index of sewage pollution is that written by Winslow and Hunnewell, published in the *Journal of Medical Research* for December, 1902. They made a study of the distribution of the colon bacillus of

Escherich and of the sewage streptococci of Houston in polluted and unpolluted waters. The bacteriologic world has been vacillating here of late between the acceptance and the rejection of the colon bacillus as an index of sewage pollution.

The Kruse school of bacteriology has long ago declared that the presence of the colon bacillus in water has absolutely no significance from a sanitary standpoint. In 1894 Kruse said "that the colon bacillus is in no way characteristic of the feces of man or of animals. Such bacteria occur everywhere, in air, in earth, and in the water, from the most different sources." Winslow and Hunnewell made a study of one hundred and fifty-seven samples of water from presumably unpolluted sources, and also of fifty samples of water from obviously polluted sources. They state, regarding the method of water analysis, that the use of large samples in applying the colon test to the sanitary analysis of water is not advantageous. In comparing their results in testing one cubic centimeter and one hundred cubic centimeters, it was seen that the proportion of lactose fermenting organisms and of colon bacilli in the unpolluted waters was more than doubled in the latter; thus waters of good quality are more likely to be condemned by the use of large samples. On the other hand, in the polluted waters, a considerable proportion of the colon bacilli originally present were lost during the incubation of the large samples, so that waters of bad quality appeared to better advantage by the use of one hundred cubic centimeters with preliminary incubation in phenol broth. The tests showed that all of the fifty samples of polluted water showed gas production against only one-quarter of the samples of unpolluted water (forty out of one hundred and fifty-seven). Furthermore, of the litmus-lactose-plates made from dextrose tubes, the entire fifty showed red colonies (colon bacilli) in the first class of waters, while only about eight per cent of the plates were reddened in the second class (thirteen out of one hundred and fifty-seven).

It seems that bacteria capable of growing at incubator temperature and fermenting dextrose and lactose are only infrequently present in unpolluted waters. The experiments on the whole show that the B. coli, with the methods employed in these tests, is very rarely found in one hundred cubic centimeter samples of unpolluted waters. In one hundred and fifty-seven samples typical colon bacilli only appeared five times, and "para-colon" bacilli five times more. This confirms the observations of Smith and the English bacteriologists as to the parallelism between the number of colon bacilli present in a water and the extent of its contamination. It can be stated that when the colon bacillus, as defined by the tests given, is found in such abundance as to be isolated in a large proportion of cases from one cubic centimeter samples of water, it is reasonable proof of the presence of serious pollution.

GYNECOLOGY AND OBSTETRICS.

IN CHARGE OF

HUGO EHRENFEST, M. D.

Progress in medicine is rarely marked by a distinct and conspicuous step forward, but more commonly is indicated by a gradual advance, and therefore I will not give merely a review of a number of picked publications, which in my opinion stand for progress, but will endeavor to briefly outline the present status of certain still unsettled, or but recently offered, problems and theories which have undergone noteworthy change as an outcome of publications of the year 1902.

Considerable work has been done as regards the histology of the impregnated ovum. Peters' theory of the imbedding of the ovum has been confirmed by the investigations of several authors. The old theory that the fertilized ovum, having entered the uterine cavity through the tube, simply attaches itself to the endometrium, must now be considered a teaching of the past. The ovum settles in the uterus by burying itself in the deeper layers of the mucosa. The decidua reflexa is in all probability not formed by the surrounding endometrium, which was supposed to have risen like a wall around the ovum, finally closing over it, but is the actual portion of the endometrium through which the ovum has penetrated. The conditions in abnormal nidation of the ovum in the tubes have been found to be identical. New light has been thrown on the process of the growth of the placenta, a point we know very little about. Based upon painstaking histological researches, Hitschmann and Lindenthal have developed a theory of the growth of the placenta which is satisfactory and suggests a plausible explanation for abnormal situation of the placenta, as in placenta previa lateralis or centralis. Another observation of still indeterminable importance has been made in the studies of the histology of the placenta.

It was known that parts of, or complete, chorionic villi could become detached from the placenta and carried away during labor. During pregnancy a similar process was known to exist in some cases of hydatid mole and ectopic pregnancy. Especially the latter observation, made by Veit, induced Poten to study this question as regards normal pregnancy. The results of his investigations are striking. He feels justified in the conclusion that detachment and deportation of chorionic villi into the maternal system is a typical occurrence in normal pregnancy. This observation, first of all, overthrew the old and deeply rooted belief in a secure barrier between fetal and maternal blood. It opens an avenue for new hypothesis regarding the transmission of diseases of the mother to the child and *vice versa*. Based upon the latest findings in this most fascinating and complicated question of hemolysis, by some authorities the possibility was suggested that the long-sought-for toxin, which, according to almost all the accepted theories, is the cause of eclampsia, may be furnished by the dissolution of syncytial masses or other embryonic tissue deported into the maternal blood. Very recent publications (Weichardt and Ascoli) seem to lend important support to this newest eclampsia theory,

The blood of both the pregnant woman and the newborn child has been the object of careful examinations. Of considerable importance are the results of the work of Halban and Landsteiner, who found that the blood of the fetus in

comparison with that of the adult represents not only morphologically, but also chemically, a state of incomplete development. Its hemolytic, agglutinating, bactericide, antifermentative and antitoxic qualities were found to be considerably less than in normal human blood.

In a book, which of its kind is without parallel in medical literature, Ballantyne, the eminent English scientist, has compiled all that is known about the normal and abnormal development of the ovum, and the physiology and pathology of the fetus. His classical work culminates in the idea of recognizing and, if possible, preventing diseases of the child in utero; a high aim, well in accord with the dominating trend of preventive hygiene of modern medicine. Another valuable feature of this book is the fact that it gives numberless hints as to where more light is most needed in this dark field of antenatal pathology and physiology.

How distant we still remain from a satisfactory knowledge of this subject may easily be inferred from the fact that we do not even know the duration of pregnancy. The new civil law of Germany defines the date of possible impregnation to lie between the one hundred and eighty-first and the three hundred and second day before confinement. Recent investigations made by von Winckel, Taussig and Zweifel have proven that in a certain percentage of cases pregnancy undoubtedly may last longer than three hundred and two days. In consideration of the fact that in such instances the child has been found unusually developed, Zweifel suggests an amendment of this law to the effect that where the child is heavier than four thousand grammes and longer than fifty-two centimetres the possibility of a pregnancy of more than three hundred and two days must be conceded.

Medullary anesthesia, which but a short time ago was hailed as a blissful aid in the sufferings of the parturient woman, has practically ended its career in this field. I will mention, however, a publication of Komann, who reports the very satisfactory effect of spinal anesthesia in a case of eclampsia. One cubic centimeter of a sterilized five per cent. solution of tropacocaine was injected in the subarachnoideal space of a parturient who had had seventeen eclamptic attacks. No other attack followed. Patient promptly regained consciousness, and after another injection of the tropacocaine gave spontaneous birth to a living child.

The limits of propriety of cesarean section have been widened, especially regarding the relative indication in moderate contractions of the pelvis. The question whether craniotomy of the living child is still permissible has been seriously considered by several writers. The ever-improving results of cesarean section have led to the suggestion of using this operation in the treatment of the two most dreaded complications of labor—eclampsia and placenta previa. While it seems, especially from the reports of last year's meeting of the British Medical Association in Manchester, that this heroic interference is gaining ground as regards eclampsia, it certainly has encountered an almost complete defeat in placenta previa. Scarcely a year since, with morbid enthusiasm, cesarean section was proclaimed as the "only proper treatment of placenta previa from the standpoint of the surgeon;" to-day some authorities positively deny the propriety of such a treatment; some concede that it has a limited field, but certainly no one dares display the enthusiasm of a short time ago.

An antioperative tendency is noticeable in the treatment of spontaneous rupture of the uterus during labor. Statistics and discussions have conclusively

demonstrated the superiority of a careful packing of the uterus with gauze over extirpation of the organ. Peham has, however, called attention to a noteworthy disadvantage of this conservative treatment. He demonstrated the imminent danger of a new rupture in the old scar during a subsequent pregnancy, and therefore concluded that a pregnancy following the conservative treatment of a ruptured uterus should be interrupted artificially. His view has since been sustained by other authorities.

The often-discussed question whether an antiseptic douche given during labor is an advisable or even justifiable procedure, has again been dealt with by Hofmeier. Contrary to the views of Baumm, and especially of Kroenig, that douche means interference with the normal process of auto-disinfection taking place in the vagina, Hofmeier proved by the results of his clinic the advantage of an ante-partum douche, and referred to the numerous unimpeachable cases recorded in literature of severe puerperal infections in women who never were even examined.

The presence of virulent pathogenic germs in the vagina of pregnant and parturient women has been conclusively demonstrated by several authorities (Doederlein, Duebendorfer, Stolz). As one of the many possibilities of an infection of the vaginal canal, Stroganoff, of St. Petersburg, has found the bath given immediately before labor. By the use of chemicals added to the water he apparently demonstrated that the water penetrates deeply within the vagina. Winter contradicted this assertion, explaining Stroganoff's result by a deficiency in the technic of his experiments. Sticher has again taken up these experiments, using (instead of chemicals) cultures of the harmless bacillus prodigiosus. He re-established the results of Stroganoff's investigations. Very recently Hertzka repeated the experiments of Sticher, applying a modified technic, and concluded that his investigations contradict Sticher's results, exactly as Winter's did Stroganoff's. He does not believe in a necessary penetration of water within the vagina during a bath; he agrees, however, with the view of Stroganoff, that indiscriminate use of one bath-tub, without disinfection, for a great number of parturients, as usually done in maternities, may often be the source for infection. He advises, furthermore, to give to a pregnant or parturient woman a bath only in running water or to cleanse her by sponging, for the maternity bath is often but "a dilution of filth" (due to the physical characteristics of the class of women encountered), and is thus hardly compatible with our present ideas of surgical cleanliness.

The treatment of puerperal infection by extirpation of the uterus was one of the topics set for discussion before the International Gynecological Congress which met in Rome, September, 1902. The almost general consensus of opinion was that this operation should not be performed. While it could not be denied, from a theoretical standpoint, that the extirpation of the puerperal uterus might be justified and advantageously performed, so long as the infection is confined to the uterus proper, it had to be conceded, from a practical standpoint, that there is no symptom indicative of the fact that the infection has transgressed the boundaries of this organ. Too early operation would be a criminal, too late operation a hopeless and useless procedure, as even Tuffier, of Paris, the first advocate of this mode of treatment, was compelled to acknowledge. By many authorities, in this discussion, the necessity was emphasized of carefully searching for abscesses and opening them if present. The device of Trendelenburg, to ligate

the vena hypogastrica and spermatica in order to check a further advance of thrombosis in cases of puerperal infection, seems worthy of consideration. A view as regards its efficacy cannot yet be formed, since it has been done in only a very few instances.

Another theme of the International Gynecological Congress was the artificial interruption of pregnancy on account of internal diseases of the mother. Two elaborate essays, prepared by Hofmeier and Schauta, consider all the possibilities. The scope of this paper does not permit of detailed report of all the indications and contraindications of interference with a pregnancy. So much may be said, however, that in comparison with prevailing conditions in our country, a striking and enviable conservatism dominates this procedure in Europe. The justification for such an assertion can be discerned in the fact that Pinard, of Paris, found in a total of 22,708 pregnancies an indication for artificial interruption in but twenty cases, and Labusquiere in 35,062 cases of the clinic in Vienna but thirty-six times. The figures exclude contraction of the pelvis as an indication, but include, however, eclampsia. In how large a percentage of the cases eclampsia formed the indication for artificial interference is shown in the statistics of Draghiesce, of Bucarest: Out of 18,132 pregnancies, artificial abortion or premature birth was produced seventeen times; of these thirteen were eclamptic, three exhibited a heart lesion, and one was an epileptic.

Several articles during the past year have referred to the great danger wrought by a complication of pregnancy with appendicitis. They emphasized the necessity of early operation, and demonstrated that the otherwise highly unfavorable prognosis is decidedly improved thereby.

A number of statistics have been published on the results of ovariotomy during pregnancy. They proved convincingly that pregnancy should not be considered any longer a contraindication for operations in the abdominal cavity. Seeligman has even removed through the vagina, by means of morcellation, a submucous myoma attached with broad base to the posterior wall of a pregnant uterus. In due time a healthy child was born by the patient.

As has been the case for several years, more publications are devoted to gynecologic than to obstetric topics.

In the center of gynecologic interest remains the carcinoma question. Abdominal radical operations, and among them especially the operation of Wertheim, seem at present to be more favored than vaginal methods, of which, however, Schuchardt's operation still obtains. What role is played by the lymph glands—whether they become infected early or late, whether all of them or only the enlarged ones should be removed, whether the extirpation of all of them is possible by means of certain operations which are called radical operations, are the main questions which were discussed last year. The opinions are divergent, and sometimes contradict each other diametrically. Unanimous is, however, the belief that a thorough renewal of both parametria in every case considerably improves the prognosis. Whether such can be done to a desirable degree by the vaginal operation of Schuchardt, or only by the abdominal route, is a question which cannot yet be settled, for the reason that we have not a sufficiently voluminous number of cases on record in which the generally conceded period of five years of freedom from recurrence has proved definite cure. At present it would seem as if the remote results of these new radical operations will be better than those which have been obtained with the older methods. Certainly they will be

really satisfactory only in such cases in which the operation has been performed early; and, therefore, Winter's dictum still holds good, that only early diagnosis and early operation will lead to more favorable results in the operative treatment of carcinoma of the uterus.

The same dictum prevails for another exceedingly malignant growth of the uterus, namely: chorioepithelioma, better known as deciduoma malignum. How many men's thoughts have been devoted to furthering our knowledge on this peculiar neoplasm may be deduced from the fact that a review on the recent literature on this subject, compiled last year by Muenzer, surveys almost two hundred publications. It must be accepted as proved that chorioepithelioma derives its existence from the ectodermal layer of the chorionic villi, or, more exactly, from the syncytial cover of same. It is distinguished from all other known neoplasms as being a growth originating from fetal tissue, but destroying the maternal organism. The clinical features of this most dangerous tumor have been considered by Ladinsky. He regards the clinical symptoms of the disease sufficiently characteristic to permit of a diagnosis without the aid of the microscope. A careful examination of scrapings, however, remains as the only reliable source for a positive diagnosis.

New cases of primary chorioepithelioma of the vagina have been reported by Peters, Schmit, Peham and Huebl. In these cases—there are now about ten on record—this malignant growth has developed in chorionic villi deported to the vagina from a healthy uterus, in the manner described in the beginning of this paper.

Although benign from a histological standpoint, in the opinion of A. Martin, myoma should be considered a malignant disease from the clinical point of view. Severe and dangerous alterations of the heart are often found as complications of even small myomata, as is clearly shown in an interesting essay of Kessler. The papers of Cullingworth, Ch. P. Noble, Scharlieb and others have demonstrated that a considerable percentage of all myomata undergo degenerative processes, and often lead to fatal complications. The belief in the spontaneous disappearance of a great number of myomas in the climacteric age has lost ground. In consideration of these new observations in the clinical aspects of myoma, Martin's conclusion is well justified, that operation is indicated in every case in which medical treatment fails, when the patient's general health is impaired, or her ability to attend to her work considerably diminished.

Adenomyoma, the peculiar variety of myoma which contains glands, has been the subject of careful investigation. In almost all of Cullen's cases a direct connection between the glands of the tumor and those of the endometrium could be revealed.

As the most noteworthy advance in our knowledge of the histology of tubal pregnancy of late, must be considered the observation of Fueth that the chorionic villi penetrate deeply into the muscular layers of the tubal wall, and in this way prepare rupture. Kroenig and Lindenthal confirm this view, the latter showing that even after the ovum has perished, either by hemorrhage or abortion, the Langhans cells may retain their vitality, may continue their destructive action, and thus, after the lapse of some time, finally lead to dangerous hemorrhage. The logical conclusion to be drawn from these and similar observations of other authorities would be that the only rational treatment of ectopic pregnancy is the surgical one. A paper of Braun-Fernwald gives a complete and

clear survey of the modern views on the etiology, pathology, diagnosis and therapy of ectopic pregnancy.

The fact that tuberculosis of the female genital organs had been made one of the topics for discussion before the International Gynecological Congress in Rome has prompted the publication of numerous articles on this subject (Martin, Amann, Tuffier, Treub, Hartz and others). These papers are critical reviews or compilations of known facts, and do not bring forth any absolutely new ideas or observations of importance. Tubercular infection of the uterus and its appendages is not a very rare occurrence. The diagnosis is often difficult or utterly impossible. The majority of authors seem to favor radical operation, either through vagina or abdomen; some, however, reject such procedure, reasoning that radical cure by operation is out of question, since the genital infection, as a rule, is but secondary, the primary seat of infection being some other organ which cannot be extirpated.

As regards the non-tubercular diseases of the uterine appendages, conservatism still remains the battle-cry. The vaginal incision, one of the oldest modes of treatment for this affection, is being resurrected in but slightly changed form. Instead of the puncture and small incision, an opening is made "wide and free" (Noble). German authorities recommend, especially for non-suppurative processes, the conservative non-operative procedures, such as hot-water douche, massage, massage with the air-colpeurynter, pressure, weight, etc.

In this connection mention may be made of a very valuable contribution of Hunner and Harris of Johns Hopkins on the diagnosis and treatment of gonorrheal peritonitis. Expectant treatment is strongty advocated, if the gonorrheal character of the infection is ascertained.

When a few years ago Theilhaber undertook to attack the deeply rooted belief that every retroverted or reflexed uterus is a pathologic condition which requires immediate treatment, he encountered as his strong opponents men like Schultze and von Winckel. Since this time the general opinion regarding the pathologic dignity of retroversion and flexion has undergone a considerable change. Theilhaber's view that not the malposition of the uterus itself, but only other pathologic alterations, usually accompanying retroflexion, are responsible for the so-called "*typical symptoms of retroflexion*," has found noteworthy support in the literature of the past year. Retroversion or flexion of the uterus must be considered an anatomical abnormality, but cannot be looked upon in every case as a disease demanding repair, either by operation or by the use of a pessary.

The relative value of surgical and non-surgical interference in this form of malposition of the uterus was exhaustively discussed in a meeting of the Obstetrical and Gynecological Society of Berlin. Since the pessary does not enjoy any noteworthy esteem in this country, it may be stated that in said discussion the usefulness of a properly modeled pessary was emphasized by several speakers. In American literature we have found but few attempts to defend this much-abused agent. (Davenport, Montgomery.)

Which of the many operations in current use for retroflexion yields the best results is a question still warmly discussed. Good results are reported by Goldspohn from his bilateral celiotomy through the inguinal rings, by Vineberg from his vaginal fixation, and by Bucura from shortening the round ligaments through the vagina (after Wertheim). New operations, or modifications of older ones, have been proposed by Baldy, Bovee, Ferguson, Gebhard and others.

There have been published new operations for the repair of cystocele by Hirst, Reynolds, Pestalozza, Chauvenet and Chiaventone. G. H. Noble has invented a very ingenious method of restoring a completely torn perineum. By freeing the anterior wall of the rectum and pulling the loosened portion downward he easily transforms a complete laceration into an incomplete one.

A. Martin's total extirpation of both uterus and vagina in cases of complete prolapse has been reinvented by Edebohls. Among all the operations for prolapse, however, Wertheim's operation, especially in the modification of Schauta, holds at present the first position. In this operation the uterus is pulled down into the vagina through an anterior vaginal celiotomy incision and fixed in this position. It is beyond doubt that none of the other operations present even approximately as large a percentage of permanent cures, especially in the severest forms of prolapse.

The number of new operations for the repair of vesico-vaginal fistulas is considerable. Such have been devised by Lapthorn Smith, Kelly, McCann, Balacescu, Gruzdeff and Wolkowitz. Subbotin's method of treating extrophy of the bladder by constructing a new bladder, with urethra and sphincter, out of the rectum, has been successfully applied by Gruzdeff in a case of extensive vesico-vaginal fistula, with destruction of the urethra. The result was perfect. Worthy of special mention is the method of Wolkowitz, because it brings forth a new principle of repair. This operator frees the cervix, all-round, from its connections, and obtains in this way a considerable mobility of the uterus. An occlusion of the fistula is now procured by pulling the uterus deeply down into the vagina and fixing it in this position.

The vaginal operations have always encountered some strong adversaries. One of the arguments often used by them was that the vaginal route does not permit of inspection of the pelvic organs outside of the field of operation. This objection is overcome by an ingenious invention of the well-known Russian gynecologist, von Ott. The use of a rather simple speculum invented by him, offers the possibility of obtaining, through a vaginal opening, a good view of almost all the pelvic contents.

The superiority of the vaginal route for certain operations is demonstrated by the reports of Murphy, Krusen, Kozlowski and Edebohls of the successful removal of the rectum *per vaginam*. The last mentioned writer argues that the resection of the sacrum, after Kraske, is an unnecessarily severe operation in the treatment of rectal cancer of the female, since the lower portion of the rectum may easily be removed through the vagina, and higher portions should be removed per abdomen. A. Martin and Thorn praise the advantages of the vaginal route in the operative treatment of myoma of the uterus.

An indispensable constituent principle for advance in every specialty is a study of the relation of this branch to general medicine. I shall close my paper with a consideration of those publications which deal with connections existing between abnormal conditions of the female genital organs and those of other organs.

Tuszkai and Sommer have studied pathologic conditions of the genital organs as an etiological factor in gastric disturbances. Goelet has made an attempt to prove that almost all gynecological troubles may be caused by a prolapsed kidney. Schaeffer has found certain changes in the circulatory system to be due to alterations in the genital sphere. Fliess' theory of a relation between

a certain form of dysmenorrhea and pathologic conditions in the nose has gained important support in the literature of the past year, and the existence of a nasal dysmenorrhea must be accepted as an established fact.

The larger part of these publications is devoted to the connection between psychoses and neuroses and pelvic affections, a subject which for many years has kept the attention of both the neurologist and gynecologist. We owe to the various painstaking reports of Hobbs, superintendent of the insane asylum of London, Ontario, the most noteworthy furtherance of our knowledge regards the role played by pelvic lesions in the etiology of mental disturbances. His conclusions are most favorably commented on by so eminent a gynecologist as B. S. Schultze, who emphatically endorses Hobbs' conclusions, that every insane asylum should have a well-trained gynecologist among its assistants, that in every insane woman the functions of her genital organs should be carefully observed, and every gynecological abnormalty found should be attended to according to the principles of modern gynecology.

In a very interesting book Kroenig deals with the origin of nervous diseases consecutive to abnormalities of the female genital organs, with secondary changes in the sexual sphere produced by primary diseases of the nervous system and with the treatment of these conditions. His views are to a considerable extent contradictory to the generally prevailing teachings. In his opinion genital symptoms are often the result of disturbances of the nervous system, while pelvic diseases but rarely produce alterations of the nervous system and never can lead to hysteria..

The amount of obstetrical and gynecological literature produced in the past year is vast. The mere task of overlooking the aggregate of this immense work is yearly growing more difficult, far greater an endeavor to write judiciously, and at the same time briefly and clearly on the "progress." The limited scope of this paper prevents detail as to operations and permits but a general survey of the subject. A detailed account of a number of the more important papers can, with the aid of the index presented in the December number of the INTERSTATE, easily be found in the abstracts published during the last year in the department of Gynecology and Obstetrics of this journal.

PEDIATRICS.

IN CHARGE OF

ALFRED FRIEDLANDER, M. D.

A complete summary of the year's progress in pediatrics is hardly possible within the limits of such a review as this. Interest in this branch of medicine, always great, has been steadily increasing of late. Many journals are devoted exclusively to this study; in many others, particularly in the journals of the specialties, much work relating to pediatrics is published. This review aims merely to summarize briefly the year's progress in medical pediatrics, embracing only those aspects not touched upon otherwise in this series of reviews. The bibliography is naturally not complete, illustrative references merely being given.

DEVELOPMENT AND GROWTH.—There is no subject in pediatrics about which more is written, and concerning which there is a greater diversity of opinion, than about *infant feeding.* The paramount importance of maintaining breast feeding whenever possible is everywhere insisted upon. Statistics show that nearly 95 per cent. of cases of gastro-intestinal disturbances occur in artificially fed infants. Marfan[1] contributes a very interesting article showing that the ability of mothers to nurse their children is not diminishing, as is sometimes held. Budin[2] is of the same opinion. Southworth[3] insists upon the importance of maintaining breast feeding, even though the amount of nourishment be only sufficient to partially nourish the child. Flachs[4] believes there should be a maternity in connection with every children's hospital, so that as many infants as possible may be nursed.

It has been shown, too,[5] that mother's milk contains many bactericidal (immunizing) substances (of the alexine group); which explains the comparative immunity of breast-fed children to various infections.

ARTIFICIAL FEEDING.—In attempting any summary on this important point it is necessary to bear in mind that the profession is still at sea with reference to the exact chemistry of milk. The American school, under the leadership of Rotch, is busily working on percentage modification. Rotch summarized his present views in his address before the British Medical Association this summer.[6] But it is recognized that percentage feeding is not applicable to the majority of cases, and simplification of method is called for. Wentworth[7] shows that absolutely accurate percentage is not necessary, and that home modification answers better. Indeed, there is still question as to the accuracy of milk analysis itself. Meigs[8] believes that human milk is rather fixed in its constituency, so that in artificial feeding the amount of food should be increased rather than have percentages of the various elements changed.

Coit[9] gives elaborate formulæ for progressive modification with "decimal" cream and sugar solutions.

Many writers insist upon the value of simpler methods of home modification.[10] [11]

The German school proceeds upon another principle altogether.

The amount of nourishment taken by breast-fed children is estimated by weighing before and after feeding. The caloric equivalent of this is calculated. With this as a basis, sufficient quantities of diluted cow's milk are taken to give approximately similar results.[12] [13] [14] [15] [16] The exact percentages of fats, proteids and sugar *per se* in the milk are disregarded.

On the other hand, the French school uses sterilized milk, usually undiluted. Commercially sterilized milk is extensively used,[17] or home sterilization is recommended.[18] The French writers do not seem to find the sterilized milk indigestible, even though undiluted, nor have they found scurvy or rickets develop after its use. In America, at least, it is generally held that boiling of milk does effect its nutritive qualities, causing coagulation of the lactalbumins, affecting the organic combination of the phosphorus, destroying the lecithin, rendering the fats less digestible.[19] It is held that Pasteurization (heating milk to 140-160° F.) does not produce these changes, and does kill most of the bacteria present, or inhibit their growth.[20] Ransome[21] does not believe that boiling milk produces all the changes noted above. Neither does he think that scurvy follows its use. Attention is everywhere directed to the fact that the procuring of a

clean milk is of more importance than any kind or amount of modification. The milk commissions of Newark, Philadelphia and New York have proved that clean milk can be produced, and an increasing measure of success has attended their later efforts.[22] [23]

Rothschild notes the value of the work of the Paris Municipal Commission in this same direction.[24]

It has been shown that clean raw milk gives excellent results, even in such conditions as infantile atrophy.[25]

On the other hand, Murphy[26] shows that the indigestibility of milk, under any modification, increases just as the acidity and the fermentation of the milk increases. It is interesting in this connection to note that Tunnecliffe and Rosenheim could not find that formaldehyde (in the strength usually used to preserve milk, 1-5000) exercised any ill effects on the general health and well-being of children.

In an interesting series of experiments Cozzolino[27] showed that the colon bacillus grows much more rapidly in cow's, goat's and ass's milk, than it does in human milk.

Various special foods are recommended. Langstein[28] has seen excellent results from the use of undiluted, peptonized milk in cases of indigestion and as a food for healthy infants. Fruecht[29] recommends Soxhlet's nutritive sugar, a mixture of maltose and dextrine. In Germany buttermilk, to which wheat flour and cane sugar are added, is being extensively used, particularly in cases of acute and chronic enteritis.[30] [31] [32] [33]

Interesting experiments have been made in Italy concerning the production of "medicated" milk. Flamini[34] found that after intramuscular injections of iodine (in solution) into lactating animals, iodine, in albuminoid combination, was eliminated in the milk. Giordani[35] obtained similar results with iron. It is possible that this may find therapeutic application. Southworth[36] contributes a valuable article concerning the feeding of children in the second year of life, insisting that cow's milk and cereals with fruit should form the basis of the diet. Very little meat should be given. In the heated term the diet should be light, and the author believes it necessary often even to dilute milk. Winters[37] in discussing the food factor in childhood points out that the rich meat diet usually allowed produces a distate for cereals, vegetables and milk, and thus sets up a pernicious habit. He thinks the use of meat ought to be restricted up to the fifth or sixth year.

Diseases of the Newly Born.—Melæna Neonatorum. — Holt[38] reports good results in a case occurring in a twenty-four-hour-old baby from the use of one-grain doses of the saccharated extract of suprarenal gland. Good results have also attended the subcutaneous injection of 2 per cent solutions of gelatin (sterilized).[39] [40]

Epistaxis in the Newly Born.—D'Astros[41] says that this is always a sign of grave infection, due either to hereditary syphilis or to septic infection. The prognosis is always serious, and therapy should be directed to the underlying cause.

Specific Infectious Diseases.—Cutler[42] has collected and abstracted the prevailing opinions on the periods of incubation, observation and isolation of the various acute infections.

Diphtheria.—Siegert[43] has collected the cases of diphtheria occurring in

five Vienna hospitals from 1886 to 1900. They number 17,626. Various interesting figures are given; suffice it to say here, that the general mortality, including all classes of cases, fell from 44 per cent in pre-antitoxin days to 16.5 per cent at the present time. Mueller[44] as the result of examination of statistics of German hospitals estimates that the mortality has fallen two-thirds since the introduction of antitoxin.

Several studies concerning the heart in diphtheria have appeared. Marfan[45] shows that in the fatal cases, especially if death do not supervene within the first few days, there is always marked muscular degeneration of the heart. In many of these cases cardiac thrombosis (not preagonal) were found. Bacteriological examination in these cases nearly always gave evidence of mixed infection, so that the comparative failure of antitoxin in these cases is explained. Bolton[46] agrees as to the acute (and extensive) degeneration of the neuro-muscular mechanism of the heart in these cases, though he does not find thrombosis to be so common. Barbier[47] found cardiac thrombosis twenty-three times in forty-five autopsies. In many of these cases the thrombosis had occurred late, was an accident of convalescence. In fifteen out of nineteen bacteriological examinations in these cases there was a mixed infection.

A good deal of literature concerning intubation and tracheotomy has been written of late. Siegert[48] has collected 22,615 operative cases since the introduction of antitoxin. The mortality was 34.2 per cent as compared with 60.3 in pre-antitoxin days. Various articles give details as to choice of method and operative technique.[49 50 51 52 53 54] Cook[55] notes, in the symptomatology, that the knee jerk was absent in ninety-nine of one hundred cases at first. Susswein[56] made a series of experiments to explain the comparative rarity of diphtheria of the gastro-intestinal tract, seeing that enormous numbers of bacilli must be swallowed. He found that cultures of Klebs-Loeffler bacilli are quickly killed by even minute percentages of acids usually present in the stomach. Though the HCL content of the gastric juice is doubtless reduced in diphtheria, the combined acidity is still enough to kill the germs.

Stephenson[57] reports forty-three cases of diphtheria of the conjunctiva in children, treated with antitoxin, with one death. Holt[58] reports a case with recovery. With reference to therapy, the prevailing opinion is that we should not wait for bacteriological diagnosis before using antitoxin. As a rule, rather large doses (2000 units at one year of age) are recommended as the initial dose, and a repetition is suggested in twenty-four hours if improvement be not marked.[59 60] Prophylactic injections are recommended for persons who have been exposed to the contagion, and for routine use in institutions.[61] The period of immunity is, however, short, probably not exceeding three weeks. Geffrier and Rozet[62] do not believe in large doses of antitoxin, because they do not believe that bad effects *never* result from its use. They have collected thirteen cases of anuria following antitoxin. They do not believe in prophylactic injections.

Kassowitz[63] still remains a vigorous opponent of antitoxin. v. Rittershain[64] describes the serum eruptions seen by him during the past four years. One thousand two hundred and twenty-four children were injected. Seventy-nine (6.4 per cent.) showed eruptions. In 75 per cent. of the cases the eruption was general. The rash usually (not always) appeared within ten days. The eruptions were urticarial, morbilliform, erythematous or rarely polymorphous. At times the

rash simulated that of scarlet fever, so that the differential diagnosis became difficult.

Scarlet Fever.—Bowie[65] has studied the blood in one hundred and sixty-seven cases. Leucocytosis is the rule, beginning early. The eosinophiles increase rapidly. So long as eosinophilia is present, we cannot be certain that complications will not arise.

Baginsky[66] contributes a careful study of scarlatinal nephritis. Of nine hundred and nineteen cases of scarlet seen in five years, eighty-eight had nephritis. There is no relation between the severity of the disease and the onset of nephritis. Time of onset of the nephritis is of no prognostic value, but it is noted that nephritis rarely sets in after the forty-second day. Of the eighty-eight cases, eleven died, thirty-eight developed a chronic nephritis. Among the rarer complications is scarlatinal arthritis, of which Szontagh[67] reports fifteen cases. In thirteen of these nephritis existed, but no uremia developed. Crandall[68] also reports cases of this sort. He, too, mentions that in these cases the nephritis is septic and does not lead to uremia.

Baginsky,[69] in a study of the bacteriology of scarlet, finds streptococci almost constantly present, intra vitam in the throat, and in various organs at autopsy. Schabad[70] investigated the question of diphtheria bacilli in scarlet. They may be found at any time in the course of the disease, may be without significance, may act merely as saprophytes, or may be virulent. With reference to treatment, Gross[71] (*inter alios*) advocates careful watching of throat and administration of antitoxin as soon as a membrane appears. In the treatment of the nephritis, Tobeitz[72] has had excellent results from the use of turpentine internally, while for the uremia Springer[73] recommends venesection.

At the meeting of the German Pediatric Society at Carlsbad this summer, Moser[74] and Baginsky[75] read papers concerning the treatment of scarlet with specially prepared antistreptococcic serum. Moser claimed excellents results, Baginsky was not so sanguine.

Measles.—Reckzeh[76] has studied the blood in measles and scarlet. Scarlet shows leucocytosis, measles none.

Eosinophiles increased at first in scarlet, absent until toward end of second week in measles. It is possible that the blood count may therefore have diagnostic value. Armand-Delille[77] examined the throats of seventy-five measles patients and found diphtheria or pasudo-diphtheria bacilli in thirty-two. In cases where there is any question, clinically, antitoxin should be used. Leiner[78] reports four cases of "pemphigus contagiosus" complicating measles. There was a bullous (later pustular) eruption which was autoinoculable and contagious. Cultures showed staphyl. pyog. aur. Bruckner[79] discusses one of the rarer complications of measles, paralysis, concerning the pathogenesis of which no definite conclusions have been reached.

Chicken Pox.—Dauchez[80] while admitting that this diseases usually runs a very mild course, has nevertheless found albuminuria in ninety-three out of eight hundred and seventy-two cases. Not all of these cases went on to nephritis, of course. The albuminuria has no relation to the severity of the disease proper.

Vaccination.—Following the epidemic of tetanus after vaccination, in Camden, N. J., the entire subject received a good deal of attention in America. About sixty cases have been collected and reported, not all of them occurring during this year, however. The need for great care in the preparation of the vaccine,

and for just as great care in the vaccination itself, is thus apparent. Van Harlingen[81] has classified the various eruptions that follow vaccination. Voight[82] has published a summary of the literature concerning vaccination for the year 1901.

The So-Called "Fourth" Disease.—The consensus of opinion appears to be that the claims of Clement Dukes as to existence of an exanthem distinct from scarlet, measles and rocthetn, are not justified.[83] [84] [85] [85a].

Whooping Cough.—Leuriaux[86] has discovered a small aerobic oval mobile bacillus, easily cultivated, which he regards as the specific cause of the disease. Serum prepared from the blood of horses, injected with increasing quantities of filtered cultures of this bacillus, brought about marked improvement in sixty-one out of the sixty-six cases of pertussis in which it was tried. As usual, various new remedies have been suggested as being of great value. Carbolic acid spray,[87] compressed air[88] and ozone[89] have been highly recommended.

Mumps.—Blood examination in a series of cases shows constant absence of leucocytosis, showing that the exudate is a purely serious one.[90]

Typhoid Fever.—Hand and Walker[91] conclude after a careful analysis of seventy-one cases, that typhoid in children does not differ in its essence from that seen in adults, except in its lower mortality (about 4 per cent). Griffith believes that the diseases run a shorter course, not averaging over seventeen days, with a mortality of about three per cent. He notes the fact that it may simulate meningitis more than is the case with the adult, especially in its onset The former view as to the great rarity of typhoid in infancy, is not in accord with more recent experience.

Influenza.—Several articles concerning influenza-nephritis have appeared. Miller[92] reports a case, has collected several more, and gives an extensive bibliography. Soumaripas[93] says that the nephritis after influenza is not rare in childhood, and states that the onset is often insidious.

Tuberculosis.—At the Carlsbad meeting of the German Pediatric Society, Schlossman read a paper on tuberculosis in infancy.[94] He says that he has never seen primary tuberculosis of the intestine or mesenteric glands, and doubts whether it occurs. Tubercular infection from milk plays absolutely no role in Germany. In the discussion which followed, it appeared that there was a general concurrence in these views. It is questionable whether this attitude is not attributable, in a measure at least, to Koch's pronunciamento. Certainly, such statements could not pass unchallenged before a body of American pediatrists. Jacobi[95] has recently called attention to the great frequency of primary intestinal tuberculosis in infancy. He believes that the gastro-intestinal tract may be the initial source for many cases of tubercular peritonitis. He says that no rules prohibiting the sale and use of milk from cows with udder or general tuberculosis can be too strict. It is also worthy of note that Anjesky[96] found tubercle bacilli in the market butter of Budapesth, and that these bacilli were virulent for guinea-pigs.

Schlossman also recommended tuberculin as a diagnostic aid, claiming that its careful use was free from danger.

Much attention has been paid to the treatment of tubercular peritonitis. At the Carlsbad meeting the general opinion was not altogether favorable to laparotomy, especially not to routine laparotomy. With this view, Comby[97] is in accord. He thinks the results of medical treatment, as generally practiced, just as good, or better than those from laparotomy. Rotch[98] believes in laparotomy

especially in those cases where the tuberculosis is represented by miliary tubercles with marked ascites. The outlook from operation is not so good where there are thick adhesions without much fluid. The X-ray has been used with good results, when laparatomy was contraindicated. Cytologic examination of the ascitic fluid[99] in tubercular peritonitis has shown marked preponderance of the mononuclear lymphocytes.

Meningitis.—Cytologic examination of the cerebro-spinal fluid[100] [101] shows that in tubercular peritonitis the mononuclear lymphocytes predominate, whereas in cerebro-spinal meningitis the polymorphonuclears are in excess This is in accord with the statement of Widal, that a lymphocytosis indicates a less active meningeal reaction than is the case where the polymorphonuclears are in excess. For the pseudo-meningitic forms no law is possible, though here a negative find may have great value. Hutinel[102] contributes an interesting article on non-suppurative (serous) forms of meningitis.

Syphilis.—Kerley[103] believes that malnutrition in children, for which no other cause can be found, is often a manifestation of hereditary syphilis. Good results have followed antisyphilitic treatment in such cases. Brunet[104] says that erosion of the first lower molar is a valuable sign of hereditary syphilis. Gluck[105] cites cases to prove the fallacy of Profeta's law, that healthy children born of syphilitic parents cannot contract syphilis.

Glandular Fever.—Hochsinger[106] denies that glandular fever is a disease per se, and considers that the enlarged glands and fever are always secondary to some infectious process about the head, mouth or nose.

Acute Epidemic Otitis Media —Rey[107] reports 57 cases. They were generally preceded by coryza (not influenzal). The specific cause is generally the pneumococcus gaining access through the nose.

Diseases of the Digestive System.—Audard[108] has reported cases and summarized present knowledge of Riga's (or Fede's) disease—vegetating ulcer near the frenum of the tongue. Forchheimer[109] in a paper on remote diseases arising from tonsillar infection, reports cases of appendicitis and infective icterus.

Stomach.—Fischer[110] has made a series of analyses of stomach contents in children. In atrophic children, and in those with subacute dyspepsia, he found no free HCl. In very young infants, at commencement of digestion, lactic acid is in excess. In healthy children, over one year of age, the HCl is present as in adults. Hecker[111] reports the results of his studies along the same line. A very extensive bibliography is appended.

Saunders[112] reports several cases of pyloric stenosis in infancy. He calls attention to the intermittent character of the symptoms, and believes that pyloric spasm is an important factor in the production of emesis. This spasm may be due to hyperacidity, which should therefore be corrected.

Summer Diarrhea —Duval and Bassett have discovered that the B. dysenteriæ (Shiga-Flexner) is the specific agent in the production of summer diarrhea. Gordon[113] calls attention to the importance of the coli group as etiological factors. There has been much written concerning treatment. The general principles advocated are:[114] [115] [116] [117] [118] [119] Prophylaxis—obtaining of pure milk, the cutting down of diet in the heated term. Treatment—expelling of peccant material, withholding of all milk for a time, with substitution of an easily assimilable carbohydrate diet, with free use of boiled water. Astringents, especially bismuth, with opiates, if necessary. Colon irrigation in selected cases, not in all.

In a short monograph on gastro-intestinal diseases in infancy, Trumpp[120] summarizes modern German views. It is worthy of note that he insists that the importance of ectogenous infection is usually overestimated. And he believes that "pathogenic bacteria are found in milk only exceptionally, and do not multiply in it." He believes that lack of assimilation, rather than lack of digestion proper, is at the bottom of many of these disturbances. Rey[121] calls attention to the close connection between gastro-intestinal disturbances and infantile eczema in many cases. Treatment should be directed accordingly.

Diseases of the Liver.—Skormin[122] calls attention to the various forms of icterus seen in infancy—icterus neonatorum, septic icterus, Winkel's disease, post-hemorrhagic and toxic icterus, catarrhal icterus (very rare), that resulting from acute yellow atrophy, congenital defect of the bile passages and hereditary syphilis. Bibliography appended.

German authors are calling attention to the increasing frequency of alcoholic cirrhosis in children in that country.[123] Here in America hepatic cirrhosis in childhood is rare, being usually syphilitic.[124] In 370 consecutive autopsies on young children Wollstein found fatty infiltration of the liver 214 times (58 per cent.), occurring in cases of tuberculosis, congenital syphilis and gastro-intestinal diseases.

Schlesinger[125] has collected all the cases in the literature of carcinoma of the liver in childhood. There have been reported ten cases of primary and eleven cases of secondary hepatic cancer. Of the secondary cases, nine showed the primary growth in the kidney, the other two in the pancreas.

Diseases of the Respiratory Tract—Croupous Pneumonia.—Pfaundler[126] noticed in fifty-five cases that the knee jerks were absent on the second or third day. No relation exists between this sign and the part of the lung affected. He considers the sign of diagnostic value.

Broncho-Pneumonia.—Bichat and Goepfert[127] report several cases of suppurative arthritis occurring in the course of broncho-pneumonia, which they regard always as evidence of septicemia. In the treatment of this condition, Sheffield[128] recommends application of a poultice made of five parts each of flaxseed meal and camphorated oil, one-half part of mustard, and enough boiling water to make a thick paste. Mitchell[129] has discarded the poultice, and prefers hot baths (105° F.) continued for ten to twenty minutes, distinctly longer than usually recommended. Zangger[130] prefers baths at 86° F. reduced to 76,° with cold chest packs at night.

Pleurisy.—Kelley[131] describes a new sign of pleural effusion in children. With large effusion, rapidly poured out, the child lies *not* on the affected side, but upon the back, because in this position there is least compression of heart and lungs, and greatest freedom of circulation and respiration. Pzewalski[132] gives as an early sign, narrowing of intercostal spaces and increased resistance on palpation.

Empyema.—Koplik[133] says the differential diagnosis of empyema can often not be made from that of simple pleurisy, except by puncture. It follows acute affection of the lung in 95 per cent of the cases. In the post-pneumonic form the prognosis is not bad, except if the pneumonia persist. Even in the tubercular form it is better than in this class of cases in adult life. Dowd[134] recommends excision of about one and one-half inch of the seventh or eighth rib in posterior axillary line, incision and drainage. The cavity should not be washed

out, except to remove purulent coagula or where there is necrotic lung tissue. Secondary operations should not be done until good opportunity has been given for healing.

Diseases of the Circulatory System.—Lees'[135] presidential address before the Harveian Society this year had for its subject "The Heart of the Child." In this admirable exposition Lees calls especial attention to the need for routine examination of the heart in children, inasmuch as conditions which might be rectified by appropriate treatment are frequently overlooked. The address gives an excellent summary of present-day knowledge of this subject. Smith[136] calls attention to the great frequency of acute dilatation of the heart in children, especially after the acute infections, and the need for prolonged rest if such conditions exist. Winkelbach-Gronigen[137] reports two cases of septic endocarditis treated by intravenous injection of 2 per cent. solution of collargol. Both cases recovered.

Diseases of the Uro-Genital System—Urinalysis in Childhood.—Crandall[138] says that specific gravity is low, reaction faintly acid or neutral, amount of urea proportionally large. In earliest life amount of uric acid is largest. Presence of albumen and sugar in earliest weeks of life need not be pathological.

Cyclical Albuminuria.—Huger[139] says this may be due to (*a*) inflammation and degenerative changes in renal structure; (*b*) alterations in quality of the blood which render its serum albumin more diffusible; (*c*) alterations in blood pressure.

Nephritis.—All forms, acute, subacute and chronic, are found, the former most often as a sequel of the acute infections, the latter as a result of acute, especially of glomerulo-nephritis. Septic nephritis (usually of streptococcic origin) is seen particularly often in malignant scarlet.[140] As a result of gastro-enteric disorders acute and chronic degenerative kidney lesions are frequently found. Bacteria and their toxins and the products of fermentative changes are the exciting causes.[141] Characteristic symptoms are wanting, though this is true very often in the nephritis of childhood. Several cases of renal decapsulation for chronic nephritis have been reported.[142] [143] The results while quite good were hardly brilliant.

Pyelitis and Cystitis are both quite common in children, and, according to Morse,[144] usually due to infection by B. coli communis.

Involuntary Enuresis.—In an article on this subject, Lydston[145] reports very good results from the use of santonin in neurotic cases, independently of the existence of worms.

Lymph Glands.—The importance of the glandular system of children as a protective filtration system is becoming more and more recognized. In early years these glands have attained full functional activity. They give origin to lymphocytes, thus determining the lymphocytosis of childhood.

In the course of divers acute infections, they react intensely. The reaction is protective, and the leucocytosis destroys or attenuates the virus of the germs. This explains why certain infections run milder courses in childhood than in adult life.[146] It also partly explains the enormous frequency of tubercular adenitis. Increasing attention is being shown to one form of this, viz., tuberculosis of the tracheo-bronchial glands[147] which give rise to rather definite signs and symptoms.[148]

General Diseases—Rheumatism.—The modern view is beginning to class rheumatism as an infection. Poynton and Payne[149] have continued their experiments and have succeeded in demonstrating and growing their diplococcus from heart valves, pericardium, tonsils, more rarely from joints. They believe that some cases of nephritis, pleurisy, pneumonia, and chorea may be of rheumatic origin. Menzer[150] in investigating the subject of tonsillar infection finds that bacilli do not pass through the tonsils into the lymphatic circulation, but through the peritonsillar structure directly into the circulation. Comby[151] has published a most interesting and complete resume of the subject of arthritism (as a whole) in childhood.

Epistaxis as the first symptom of rheumatism in children has recently been noted in ten cases.

With reference to treatment, Crandall[152] aptly considers the "management of rheumatic children," believing that children who have had one attack need careful watching for prolonged periods. He advises intermittent administration of salicylates, over long periods of time, even in the absence of definite attacks.

Chipman[153] reports a case of acute rheumatism showing pyemic temperature curve and very severe symptoms treated (with excellent results) with antistreptococcic serum.

Rickets.—Ausset[154] (in common with many other French writers) does not believe that rickets is ever caused by the use of sterilized milk; in fact, he believes that "sterilized milk is better for infants than wet-nurses."

It is believed by some authors that a relation exists between rickets and the thymus gland, as proven by experimental removal of the gland in animals. In 300 autopsies on children who had had rickets, gross changes in the thymus were found constantly.[155] Good results have also followed the internal administration of thymus gland in rachitic children. No bad effects were observed.[156] Carriere[157] reports good results from the use of lecithin in cod-liver oil.

Infantilism.—Meige[158] in a review of the subject says that there are two types: (*a*) Myxedematous, a specific autointoxication with defective thyroid metabolism, and symptoms like those of myxedema.

(*b*) Type Loraine, with defective arterial development, anangioplasia and resulting insufficient nourishment of tissue.

In this connection may be mentioned an observation of Koplik and Lichtenstein.[159] They found in cretins, idiots and congenitally deficient children a marked prominence of the antithenar eminence over the os pisiformis.

Achondroplasia.—Several cases of this interesting condition have been reported by Morse[160] (in detail), Comby,[161] Cautley.[162]

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NEUROLOGY.

IN CHARGE OF

SIDNEY I. SCHWAB, M. D.

An attempt will be made in the following pages to give a resume of the most important contributions to neurology which have appeared in the year 1902. No effort at completeness will be attempted, but such articles have been selected from the German, French and English literature which in the compiler's opinion seem best adapted to show on what line neurology has advanced during this year. If seemingly important articles have been omitted, it is for the following reasons: either the article has appeared in a journal not found at a medical library or unnoticed in the Centralblaetter, or has not been found in the special journals in the writer's own collection, or that the article is too technical for abstract in a paper which is meant for the general practitioner who may have more than the usual amount of interest in the subject of neurology.

ANATOMY AND PHYSIOLOGY.—The nerve cell has been the subject of a considerable number of papers, but not nearly so great as in the preceding years. This may be due principally to the work of Apathy and Bethe, which called attention to other structures than the nerve cell; namely, to the fibrillæ, or perhaps to the growing tendency to regard further progress in the anatomy of the nerve cell as dependent upon such an improvement in technique which will exclude artificial appearances. Such an advance has not as yet taken place. The best single article on the newer views in regard to the nerve cell is that by Heinrich Vogt.[1] In this paper a complete bibliography of two hundred and forty-one titles is given. This enormous material is critically analyzed by the author; he concludes, first, that the fibrillary structures of the nervous tissue was first shown by Max Schultze. The fibrillæ must be regarded as specific elements of the nervous tissue; second, that the modern fibrilla theory is chiefly the result of the word of Apathy and Bethe. Since their work, the continuity of the fibrillæ is a proven fact. Third, the neuron theory must be modified, as Verworn suggests. The newer conception is less concerned with the question of the unity of the individual neuron than with the part which the nerve cell plays in nervous processes.

SYMPTOMATOLOGY.—Kernig's Sign. This symptom has excited much interest since its discovery. The tendency has been to regard it in a wider sense than indicative of a meningeal lesion. Sailer[2] reports two cases in which this sign was present when the lesions were in the brain and on the opposite side upon which the symptom was found. His conclusions are: First, Kernig's sign may occur as the symptom of focal encephalitis, and in this condition may be present upon only the opposite side of the body. Second, in these cases there may be a persistent tonic spasm of the flexor muscles of the arm, which, however, does not resemble Kernig's sign in its mechanism. Third, the most reasonable explanation of Kernig's sign that we have at present is to ascribe it to an irritative lesion of the pyramidal tract that diminishes, but does not destroy its functional activity. William G. Shields[3] examined one hundred non-meningetic cases for the presence of this sign. In five cases the sign was present. F. S. Clark[4] found that the sign was absent in three cases of meningitis. In two of them the

meningitis was tuberculous. This confirms the opinion that this sign in tuberculous meningitis is very unreliable.

Reflexes.—There have been a number of reflexes discovered in this year, but most of them are of but slight aid to diagnosis. The work on the Babinski reflex is by far the most important. Among the newer reflexes, the supra-orbital, discovered by McCarthy, deserves first place. Hamburger[5] found that the main conclusions advanced by him concerning the Babinski reflex, in a former article, are confirmed by his further studies. His conclusions are that the isolated dorsal inflection of the great toe is a certain sign of a lesion affecting the motor fibres of the internal capsule; that the dorsal contraction of the great toe is found especially in all hemiplegias; that the reflex is almost always wanting in those cases of cerebral paralysis which, on account of numerous insults, produce an atypical clinical picture of spastic paretic motor disturbance. Three fresh cases of apoplexy were studied by him, in one of which the examination could be made five minutes after the stroke. In all three cases the reflex was at first absent but appeared later. In cases where there is a bilateral Babinski, the author believes it means that the ventricle has been broken into. One case proved this point at autopsy.

Supra-orbital Reflex.—There has been more or less discussion concerning this reflex discovered by McCarthy in 1901. Von Bechterew[6] denies the right to McCarthy to designate this as a true reflex. McCarthy[7] answers this objection and others and especially notes that the reflex described by him under the name of supra-orbital is not mechanical and does not refer to a movement of the lids, but to a fibrillary contraction. The fibrillary contraction of the muscle fibrils of the lower lid and not the movement of the lids themselves make up the reflex.

An experimental investigation by Turner[8] is referred to here on account of the important data derived from his work in regard to the state of the knee jerks in man after transverse lesions of the cord. This paper is easily the most important contribution to the subject of reflexes which the year has given to us. In this brief resume no satisfactory abstract can be given. From a clinical point of view, Bechterew[9] calls attention to the slowness of the knee jerk in multiple neuritis and to the quick fatigue of the same in cases of myelitis. These changes are observed in convalescents and during the development of certain diseases, such as tabes and neuritiden. They seem to point to a disturbance in the reflex arc which is not so deeply concerned as when the total disappearance of the tendon reflex occurs. Perhaps these phenomena may have a diagnostic importance, for example in the early stage of tabes, when the other symptoms are not pronounced. A number of other reflexes have been described during the year, most of which have no clinical importance as yet. The most noteworthy of these are Steiner's infra-spinatus,[10] Von Solder's corneo-mandibular[11] and Bechterew's lumbo-femoral.[12]

Multiple Sclerosis.—The best single article on this disease is that by T. Hoffman.[13] This is an excellent resume of our knowledge on the subject. This paper is based upon the observation of one hundred cases and the post-mortem examination of three. Under etiology, the greatest importance is given to trauma and infectious agents. In fully one-half of the cases no etiological factor was obtainable. The polymorphic character of the symptoms is especially emphasized. As a matter of fact, outside of the classical symptoms, such as

nystagmus, intention tremor, and spastic paretic gait, almost any symptom peculiar to the nervous system may be a part of the clinical picture of multiple sclerosis. Great stress is laid upon the eye symptoms, and in this respect the presence of a beginning optic neuritis, especially of the temporal side of the eye ground, is of the greatest significance. All cases of so-called hysterical optic neuritis, in which eye ground changes are found, are probably cases of atypical multiple sclerosis. In the multiple sclerotic foci may be observed changes in the blood vessels, in the neuroglia, and in the specific nerve elements. Outside of this increase in the nuroglia elements, the most striking and perhaps the characteristic change is the disappearance of the myelin sheaths with the normal condition of the axis cylinders and nerve cells. The preservation of the nerve cell, with an intact axis cylinder, prevents secondary degeneration, a fact which may be regarded as characteristic of this disease. In which of the three elements of the central nervous system the process plays its chief part, whether in the neuroglia, the blood vessels or the nerve cells, is as yet undecided. A paper by E. Flatau and J. Koelicher[14] brings out in a histological study the close relationship between myelitis and multiple sclerosis, and the conclusions reached that no certain characteristic change has been found which may be regarded as absolutely typical. The assumption is that the process which produces the myelitic symptoms is more intense and reaches more deeply into the tissues of the cord than that which produces multiple sclerosis. The absence of softening in the latter is a proof of this. Possibly the difference is merely one of degree. The increasing importance of infection and intoxication is emphasized also in this article. An article by Carrier[15] calls attention to the possible significance of syphilis as an etiological factor in this disease, and deserves mention chiefly for the reason that any such relation has always been denied. The proof here given is not very convincing. A case exhibiting the occurrence of both tabetic and multiple sclerotic symptoms in the same individual is an interesting clinical contribution to the subject by Sinkler.[16]

Tabes Dorsalis.—The number of papers that have appeared on tabes have been very large. No special advance in our knowledge of the subject can be noted. To the question of infantile tabes a very important place has been given, and the papers that have appeared this year on that subject have permanently settled the question of their occurrence. Mass,[17] Idelsohn,[18] and Bloch[19] have written papers on this subject which deal with well defined cases of tabes in infants and in young adults in whom recent syphilitic infection is not probablle In most of such cases hereditary syphilis is either directly proven, is highy probable in one or both parents. The difference between adult and infantile tabes seems to lie rather in the benign character of the latter than in any marked difference of symptoms as such. In Bloch's case there was no evidence of syphilitic infaction on the part of the patient. In none of the cases was any evidence of syphilis present, nor did any antisyphilitic treatment avail anything. This points to the metasyphilitic origin of such cases. The chief contribution to the pathology of tabes is found in Thomas' and Houser's article[20] on the study of the posterior roots and the posterior root ganglia in tabes. They come to the conclusion that the essential lesion of tabes is a dystrophy, which affects in its whole course the sensory peripheral protoneuron. The histological changes are characterized by alterations in the nerve fibers, similar to a certain extent to those found in certain toxic neuritiden, which are either a result of experiment

or of disease. Although the cell body in general is found unaffected, it is sometimes the seat of atrophic lesions. Although anatomical lesions in the cells are rare, it is reasonable to suppose that its trophic function is to a certain degree compromised.

Tumors.—There has been no marked advance in our knowledge of the effects produced by tumors affecting the central nervous system, although a number of papers of more or less interest have appeared during the year. Perhaps the most instructive has been the effort of Mills and Phaler[21] to locate the position of a cerebral tumor and to indicate the seat of operation by means of the X-ray. In both of these cases the shadow of the tumor was obtained. Operation and autopsy in one case, and operation alone in the other, confirmed the findings. In a subsequent paper by Mills[22] this subject is considered from the surgical standpoint from a neurologist's point of view. This paper is of interest to both the surgeon and the neurologist and contains the latest and best proven data on this subject. Oppenheim[23] describes a case of unusually accurate localization in a tumor of the spinal cord, in which it was found necessary to remove only two laminæ to reach the tumor. This is certainly an example of very exact localization. Most of the other papers on this subject concern themselves with the pathology of such growths and the explanation of symptoms which their unusual localization produces.

Myelitis.—The most suggestive paper on this subject is by Singer,[24] in which he calls attention to the important role which syphilis plays in the causation of acute myelitis. In two cases the chief pathological change was found to be in the blood vessels, in the form of a syphilitic arteritis. In a review of nineteen cases, coming under the author's observation, a history of syphilis was found in fifteen. The interest of this investigation lies in the fact that in seventeen out of nineteen cases there was either syphilis or senile degeneration, the two most potent factors in the causation of thrombosis of arteries.

Poloimyelitis.—The question of the occurrence of this disease in the adult is treated by Taylor[25] in an article in which he describes six such cases, and discusses the relationship of this disease with some others, notably Landry's paralysis. Some of his conclusions are as follows: Acute poliomyelitis is a well-marked clinical affection. This disease has frequently been confused with multiple neuritis and so-called Landry's paralysis. Its anatomical basis is a primary inflammation in the distribution of the ventral arteries of the cord, leading to a destruction of nerve cells. There is no sharp line to be drawn between these lesions and still more extensive ones giving rise to a totally different clinical picture—*e. g.*, encephalitis, polioencephalitis, etc. Anatomically this disease is much less sharply characterized than it is clinically. From a practical point of view, it is well to consider such cases poliomyelitis which show a flaccid atrophic paralysis of sudden onset, with definite anatomical changes, limited to the ventral horns of the cord and their immediate vicinity.

Muscular Atrophy.—A considerable number of interesting cases have been published during the year, many of them in the French journals, especially in the *Nouvelle Iconographie*. The general tendency of these articles has been to set aside the old division of cases into one category or the other, and to regard the question of classification as still unsettled. An article by Cohn[26] sums up in the best manner the different points which the discussion of classification has touched upon. He points out the fact that all attempts at limitation by special

forms based upon the anatomical peculiarities are invalidated by the fact that, first, there are intermediate forms in all clinical types, and, second, in one and the same anatomical form, the clinical picture may be entirely different. The former sharply defined distinction, based upon the occurrence of the reaction of degeneration in the spinal type and its absence in the purely muscular type is weakened by the constantly growing number of exceptions to this rule.

NEURITIS.—There have been some interesting clinical papers on neuritis, chiefly in the sense of showing rare forms in point of etiology. Diller's paper[27] on the occurrence of multiple neuritis with Basedow's disease, and Luzatto's case[28] of malarial neuritis, with autopsy, are worthy of mention in this regard. J. Kron's paper[29] on a case of arsenical neuritis is interesting from the fact that the sphincters were involved. This serves to invalidate, to some extent at least, the idea that the involvement of the sphincters was a valuable differentiating sign between spinal cord affections and neuritic ones. In the latter the sphincteric control was supposed to be retained, and in the former it was not.

NEUROSES.—Hysteria, as is usually the case, has been the subject of numerous papers, mainly in the way of clinical reports upon rare cases, such as Burchard's[30] case of hysterical gangrene, Matterer's[31] case of hysteria and epileptiform crises with fever and spontaneous ecchymoses, and Vaillon's[32] case of hysterical breast. Such reports are interesting, but they throw little light upon the nature and cause of the disease, which is so much to be desired at present. Greff's[33] paper on the central limitation of vision in hysteria is valuable, for the reason that he indicates a means of differentiating this from the simulated form, always a matter of difficulty. The acuity of vision in these cases is almost always normal, in spite of the marked concentric narrowing of the field. This in itself is pathognomonic of hysteria, because there is no known eye condition which will produce such intense limitation of the field of vision with a normal ophthalmoscopic finding. A second interesting peculiarity consists in the fact that when the examining distance is increased the patient's field of vision does not increase in proportion to the angle thus formed, but remains contracted as before. A number of papers on neurasthenia have appeared, but none seem to show any special advance on our knowledge of the subject.

EPILEPSY.—It is very encouraging to note the wide interest in this subject which the number of papers and their quality demonstrate. There have been two marked advances in our knowledge of epilepsy during the year. One in respect to its dietetic treatment and the other in the study of the blood. By far the most significant paper which has appeared is that of Ceni.[34] The object of this paper is to study the pathogenesis of epilepsy for the purpose of adding to the proof of the autotoxic theory of the disease. Small doses of blood serum of epileptics were injected into other epileptics for the purpose of ascertaining if the specific poison would introduce into the organism any property that might be of therapeutic value to other less severe and earlier cases. Following this was an attempt to render a patient immune against the toxic substance found in his own organism by giving progressive doses of the same serum. The therapeutic results are divided into two groups: eight cases with positive and two with negative results. It may be said that even if the benefits obtained, as regards the general condition and the more or less remarkable diminution of all epileptic manifestations, are only transitory, they are none the less of sufficient duration to commend the treatment to further trial. A number of papers have appeared

which deal with the dietetic treatment of epilepsy, as first advocated by Toulouse and Richet. This treatment in brief consists in the withdrawal of all chlorine compounds from the food, especially the NaCl, and supplying in their places the bromide salts. In this way very large doses of the bromides are well borne. Schaefer[35] tried this method on some old epileptics for a period of two weeks, and found very definite improvement in both the attacks themselves and in the general psychical condition of the patients. Schnitzer[36] reports his experience in sixteen cases. The diet was as follows: per day, one and one-half litre milk, fifty gr. butter, three eggs unsalted, four hundred gr. bread and some fruit. The bread was baked with NaBr instead of NaCl, and each four hundred gr. of bread contained three gr. of bromide. His results are in two cases disappearance of all symptoms, in ten cases great improvement, in two slight improvement and in two no result at all. The experiment lasted forty-two days. Whatever else can be said of this procedure, it can safely be admitted that it represents the greatest advance in the dietetics of epilepsy that has as yet appeared, and if it is combined with the methods used in the colony treatment of epileptics, good results are sure to follow. M. Bra[37] describes an organism which is found in the blood of epileptics. and which he thinks is the probable cause of the symptom. To this he has given the name "neuro-coccus." Further investigation will be necessary before this theory can be accepted. Feinberg[38] treats of luetic epilepsy in a very interesting paper. He differentiates two types: first, an epilepsy without any cerebral disturbances, and second, epilepsy with cerebral phenomena which immediately precede or follow it. This paper is of great interest, as it throws light upon the subject, which has always been one of great obscurity.

Myasthenia Gravis.—Great interest has been aroused in this condition since the publication of Oppenheim's monograph, and since the appearance of numerous reported cases. The most notable contribution of the year has been the Goldflam and Flatau[39] paper which extends through eight numbers of the Neurolog. Centralbl. Eight cases are reported together with an autopsy. Microscopical study of this case showed very peculiar changes in the muscle substance. The microscopical findings in cases of this kind have been so varied and so indefinite that no special weight can be placed upon this unique appearance. At present it must be admitted that although our knowledge of the clinical aspect of this disease has become very definite, as far as its pathology is concerned we are in as much doubt as ever.

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GENITO-URINARY SURGERY.

IN CHARGE OF

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SURGERY FOR BRIGHT'S DISEASE.—In October, 1901, R. Harrison reported six cases of kidney symptoms or lesions in which, after being operated upon by puncture of the organ, the symptoms or lesions disappeared or improved. But these were chiefly of inflammatory nature, the author taking scarlatinal nephritis as a type. He contented himself with splitting the capsule along its convex border, or extending the cut through the kidney substance and into the pelvis, if indicated. To this he added numerous punctures over the surface of the organ. He considered that the tension of the capsule about the inflamed kidney had a harmful influence upon and prevented its repair, just as ocular tension does in glaucoma. He says that when this tension is relieved, urinary excretion increases at once and the general circulation improves. In December of the same year Edebohls described his operation of kidney decapsulation for the distinct purpose of curing chronic Bright's disease, and emphasizes the fact that in nearly one-half of all the cases the disease was unilateral. He found no difficulty in recognizing the disease in the kidney as it lay pulled through the wound before him with the blood circulating through it. Contrary to Harrison's conclusion and belief that it is to the relief of renal tension that is due the improvement, Edebohls regards the improvement of the circulation of the kidney as the chief factor which leads to benefit. By removing the kidney capsule the vessels of the organ come into intimate contact with those of the fatty capsule.

The results which he reported were so favorable that other surgeons have been led to essay the operation. Among them is Guiteras, who reports his experience in three cases. In one of them there was improvement; another had been operated upon too recently for deductions. In the third case the administration of the anesthetic (chloroform) caused such alarming symptoms in the patient that the operation was abandoned. He concludes, with Edebohls, that nephropexy is a beneficial procedure in a movable kidney of a patient suffering from chronic nephritis, and that nephrotomy is a valuable operation in unilateral chronic nephritis associated with hematuria and nephralgia, but holds in abeyance and approaches in uncertainty Edebohls' kidney decapsulation.

Pousson's experience has not been so favorable. Out of six cases operated upon he has had the misfortune of losing two; but while his death-rate is high, the four cases which recovered have shown considerable amelioration of the con-

dition. He has collected thirty-three cases from literature with a mortality of two, and says that while practically all the cases of chronic nephritis that come to the dead-house are bilateral, with all of the kidney substance involved, yet those that come to the surgeons are susceptible of being unilateral, since the disease is not so far advanced. He calls attention to the fact that the side on which edema is greatest has the more diseased kidney, and that operation upon one kidney, and the benefit following, will influence for good the disease in the other kidney. He employs Harrison's method of incising the capsule, but commends the nephrocapsectomy of Edebohls, and says that while the relief of renal tension may inaugurate the improvement, the operation of Edebohls, by allowing the formation of new blood vessels, may keep up this improvement and lead to cure.

Movable Kidney.—This subject has claimed the attention of numerous surgeons and medical men, the surgeons protesting against the conservatism of the latter, while the medical men regard the numerous operations of the surgeons as not only unnecessary, but even meddlesome. Watson enters a protest against the current attitude of medical men. They hold that the operation is unjustifiable because of the likelihood of the recurrence of the mobility: the failure of the operation to relieve symptoms; because the condition causes little or no damage to the kidney; and, further, because most neurasthenics show signs of movable kidney. Watson considers that while this, to some extent, may be true, yet the nephrotosis does cause neurasthenia; serious consequences to the kidneys, such as hydronephrosis, pyonephrosis, fixation in an abnormal position; and, rarely, gangrene of the organ.

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Gallant speaks, on the other hand, from the medical side, and says that from ninety to ninety-five per cent. of women who suffer from nephrotosis can be relieved without operation. He first removes other sources of peripheral irritation by operation if needed, and employs rest and support as a means of cure, having devised a very ingenious corset to give support.

Goelet uses silkworm gut boiled in lysol (which renders it as pliable as catgut) for fixation sutures; thinks that nephropexy should be done even though the nephrotosis be but one element in a general enteroptosis, and has observed that the kidney most prolapsed is the most congested. He brings his fixation sutures entirely through the skin, ties them over gauze and places gauze under the lower pole of the kidney. The wound is brought together with adhesive strips.

Cabot having had a case of severe bleeding in a patient with nephrotosis, which was evidently due to the obstruction to the renal vein caused by the sagging of the kidney (the bleeding was relieved by the prone position with pelvis elevated), suggests that in many of these large and movable kidneys, in addition to the hydronephrosis, congestion plays an important causative role in the enlargement, and is, too, probably, the exciting agent in cases of hematuria without a discoverable cause, that we frequently cure by cutting down upon the kidney and splitting the capsule.

Mallett considers that the fixation of a kidney in a malposition is often the cause of failure to relieve symptoms after the operation, because of torsion or dragging upon its ureter, vessels and nerves. This malposition, when the means of suture is that generally employed, consists of stitching the convex

border too far backward, thus causing the pelvis and its vessels to be tilted forward, obstructing the vessels and ureter.

Carwardine uses carbolic acid, freely painted over the whole surface of the kidney except the hilum, in order to secure by means of granulating tissue thus produced firm adhesions.

Edebohls, again, calls attention to the frequency with which movable right kidney and appendicitis coexist, and advocates examining and removing the appendix, as well as examining the bile passages, through the lumbar incision made for anchoring the kidney. He does not hesitate to do bilateral nephropexy at one sitting, employing his well-known method of decapsulation. For this purpose he places the patient upon the table with the abdomen downward, and does not regard a slight mobility after recovering as incompatible with success.

Witherspoon says he is very certain that many of the dyspeptics (thin, nervous neurasthenics), with stomach, bowel and liver symptoms, could have the seat of their trouble traced to a kidney which, because of abnormal mobility, causes a chain of disturbances which are incorrigibly difficult to handle.

Nephrolithiasis.—Great credit is due Leonard for the excellent work he has done in the field of calculus skiagraphy. In his experience the Roentgen method gives such positive results that out of two hundred and six cases examined error occurred in but four—errors due to faulty technique or faulty interpretation of the plate. The value of this method can be readily appreciated when we consider the difficulties of diagnosis and the dangers attendant upon other means. The x-ray has shown the greater frequency of ureteral calculi, and has enabled us to adopt a more conservative way of dealing with them. Among the possibilities of error are such conditions as phleboliths. The Roentgen method enables us to exactly locate a calculus, so that we can cut directly down upon it, and thus avoid exploratory incision into the kidney substance for other stones, and shows not only the location but the number of calculi as well, in addition to the information as to absence or presence of calculi in the other kidney. This applies to the ureter as well as to the kidney. To Bierhoff is due the suggestion that if the kidney pelvis is repeatedly distended by some bland sterile fluid it will bring about a movement of the calculus, which will be followed within twenty-four hours by distinct hematuria when a stone is present, and when no stone is present there is no hematuria.

Rupture of Kidney.—Davis concludes that the expectant plan of treatment is permissible in cases of subparietal rupture of the kidney, where slight hematuria is the only symptom. Tumefaction, much blood in the urine, severe pain and history of great injury, each is a positive indication for prompt operative intervention.

Urinary Lithiasis.—Urinary lithiasis, from Serginewsky's point of view, is very unequally distributed upon the face of the earth, and at times is met in veritable epidemics, with no discoverable local cause, except in Egypt, where the calculi are developed around a parasite which penetrates into the bladder. The study of the geographical distribution of urinary lithiasis reveals no specific cause as regards its etiology and pathogenesis.

Ureteral Anastomosis.—According to Smith, the ureter should never be implanted into the bowel, neither should it be tied to cause hydronephrosis, and

in view of the excellent results in transplantation into the bladder, nephrectomy becomes a last resort, hardly justifiable.

On the other hand, Peters reports four cases in which he transplanted the ureters into the rectum, using his method, by means of which he carries a rosette of the mucous membrane and muscle wall of the bladder adjacent the ureter into the rectum, and thus forms a real and efficient valve for preventing ascending infection. Three of these recovered. From the point of view of comfort and happiness of the patients, the result left nothing to be desired. In none of them was there any ascending infection, the observation in one case extending over more than two and a half years.

While performing vaginal hysterectomy, Turner cut the left ureter two inches from the bladder. Having accidentally split its proximal end, he made an anastomosis by implanting the lower into the upper segment, the patient making an uninterrupted recovery. Monroe reports a case in which one member of a double ureter was distended with pus. As it communicated with its fellow just above the bladder, a catheter passed into the ureter from the bladder drew clear urine, while pus exuded from around the catheter, evidently coming from the pus-distended ureter.

Calculus of the Ureter.—Young considers that the lower portion of the ureter in the male is now as amenable to treatment as any other portion of the urinary tract, and as a means of diagnosis gives due credit for the valuable aid of the cystoscope, catheterism of the ureteres, differential examination of the two urines, and the value of the x-ray skiagraphy. When the stone is in the very end of the ureter it may be extracted by a ureteral catheter, cystoscopic dilatation of the lower end of the ureter, or through a suprapubic opening. When the stone is above the vesical junction it is best removed by the iliac route (extra peritoneal).

Leonard uses the x-ray for diagnosing ureteral calculus with a precision that allows of less than 2 per cent. error.

Stricture of the Ureter.—Ureteral stricture has claimed the attention of Kelly, who gives as its etiology inflammations in the ureteral walls, caused by pyogenic cocci, gonococci and tubercle bacilli. There is no particular symptom diagnostic of stricture even in advanced cases, but the condition may be made out by palpation, inspection and catheterization. The pelvic portion of the ureter is easily accessible to palpation, and in women a stricture in this portion can often be felt upon vaginal examination. The upper ureter in man and woman is palpable through the air-distended rectum. The most characteristic of all signs of stricture of the ureter is the firm grasp with which the catheter is held by the stricture upon attempting to withdraw it. The treatment consists in dilatation with bougies, catheterization and lavage, resection (rarely used), extirpation of tract (in tubercular ureteritis), and division of the stricture. Impartant accessories to the treatment are evacuation of the old fluid above the stricture and sterilization of the upper urinary tract by the injections of solutions of boric acid, etc.

Ligature about the ureter during an operation, if removed before the close of an operation, will probably not have injured the ureter. Complete occlusion of the ureter, in the absence of impaction, leads to atrophy, with more or less dilatation of the ureter and pelvis of the kidney, and is justifiable only when an anastomosis is impossible (Sampson).

PROSTATE.—Surgery of the senile prostate, while becoming each year a more recognized and justifiable procedure, is still in an unsettled state. Almost every surgeon has an operation of his own, which differs more or less from that of others. This is good evidence that there is still much to be desired. The merits of the respective operations may be best judged from the following considerations:

THE BOTTINI METHOD.—Horwitz collects eight hundred and eighty-eight unselected cases of the Bottini operations, out of which seven hundred and fifteen were either improved or cured, the mortality being 5.7 per cent. As a result of these statistics, he places this procedure upon a firm basis. Young regards the small sclerotic prostates, and those of patients too old and feeble to safely undergo the shock of a satisfactory prostatectomy, as especially amenable to the electro-cautery incisor. He has made several improvements upon the Freudenberg instrument, and believes that prostates should be studied and incised intelligently, but as a rule usual three incisions—one posterior and two lateral—are entirely sufficient for most cases. Chetwood makes a perineal incision into the urethra, and through this, with his galvano-cautery instrument, incises the prostate as may seem required, and believes that in the majority of cases the requirements of any operation upon the prostate consists in the removal of the obstructing area and depressing the bladder opening into the prostate, so that the bas-fond may be properly drained.

Wishard cauterizes the prostate through a perineal opening, using his instrument, which admits of the work being done under the direct inspection of the eye in a bladder distended with air.

Meyer employs litholapaxy in combination with the Bottini operation. Bangs reports forty-two operations. Sixty per cent. of the patients have thrown away the catheter, 20 per cent. have increased the amount of spontaneous urination, and 20 per cent. showed little or no improvement, the mortality being three.

Guiteras holds that the mortality of prostatectomy is three times as great as in prostatotomy, and the failures are about as frequent; but the recoveries from the former are better than those from the latter. Very old men, with slightly damaged kidneys and prostates that do not feel very large on rectal examination, yet causing causing considerable urethral impediment, are cases for prostatotomy.

PROSTATECTOMY.—Fuller remarks in regard to the Bottini operation, that the statistics of a new procedure cannot be relied upon. Just as those of castration, which, in the beginning, were even better than those now reported from the Bottini operation, have not been verified by further reports, so with those of the Bottini operation. For radical relief in the majority of cases the question resolves itself into prostatectomy or nothing, unless suprapubic fistula. In the minority of cases it may be proper to consider in connection with prostatectomy the Bottini operation.

Ferguson does perineal prostatectomy by cutting down upon the apex of the prostate and through blunt dissection exposing the gland and opening its capsule transversely. By traction from below and depression from above, the prostate can be brought within easy reach and enucleated. No effort is made to save the prostatic part of the urethra.

Albarran is convinced that loss of vesical contractility is secondary to the

glandular lesions, and that the difficulties of urination are due to the mechanical obstacle of the hypertrophied prostate, together with the lessened vesical contractility. He operates from the perineum, injuring the urethra only upon the inferior wall of the prostatic portion. Prostatectomy is the operation of choice with him, and the perineal route furnishes the best method of doing it.

Lewis endeavors to select for each the most suitable operation, the suprapubic, perineal, or the Bottini.

The Bottini operation does not appeal to Syms as a sound surgical procedure; it does not remove the hypertrophied prostate and only partially the obstruction; it leaves a slough to separate and come away through the urethra. Perineal prostatectomy has, in his hands, much reduced the mortality of the operation. He has invented a bladder retractor, by means of which the bladder and prostate can be pulled down into the perineum so that the lobes can be reached and enucleated with the index finger. Prostatectomy should not be left as a last resort, but should be done before the patient is in a dying condition, or not at all.

According to Bryson the venous obstruction of the prostate plays an important role in the symptoms. He operates through the perineum, opening the urethra by a median incision. Having explored the bladder, he now with a blunt instrument opens the prostatic capsule from the floor of the urethra and enucleates the prostate with the index finger, taking care to destroy no more than the floor of the urethra. In order that the finger may the more easily enucleate the prostate from the perineum, he makes a counter suprapubic opening down to the bladder without opening its cavity, and through this by means of pressure with the hand forces the prostate more into the perineum.

Andrews operates infrapubically, that is, enters beneath the pubic arch, severs the prostatic attachments, removes a part of the prostate without entering the urethra, and thus relieves the gland from the fixed space behind the pelvis, allowing it to drop backward. This lowers the bladder outlet and does away with the retroprostatic pouch.

Prostatic Pathology.—Greene and Brooks, from the study of fifty-eight hypertrophied prostates, conclude that the hypertrophy is the result of chronic prostatitis, which arises most frequently from chronic posterior urethritis, of whatever cause.

Albarran and Motz say that the prostatic capsule is not a capsule proper to the organ, but is made up of the fibrous walls of the cavity which contains it, the base and summit being devoid of a capsule; that in hypertrophy the gland does not grow backward, covering the trigone, but, rather, the urethra and neck of the bladder elongate.

Halle and Motz hold that with prostatics the lack of power of the vesical wall is largely due to the atrophy of the muscle fibres and their replacement by the large amount of connective tissue. The bladder of prostatics is especially noticeable, in that there is an unequal hypertrophy of the internal muscular layer, allowing of the formation of trabeculæ, and the atrophy of the external muscular layer permitting hernia of the mucous membrane, and thus the formation of sacculi.

Lydston calls attention to fatty degeneration of the prostate and bladder as an important factor in genito-urinary pathology, and suggests it as one cause of failure of radical operations to relieve symptoms, especially in hypertrophied

prostates. He reaches the conclusion, from pathological and clinical studies, that posterior urethral inflammation is the exciting cause for prostatic hypertrophy.

Iastreboff considers that elastic fibres, which are found throughout the prostate in a thick network, and as a solid membrane around the capillaries, which by their action maintain the volume of the organ in its normal state, are of utmost importance. In hypertrophied prostate these fibres are diminished or absent, thus allowing of passive congestion. The disappearance of the elastic fibres in the conjunctive tissue of the prostate of old men, together with the dilatation of the veins in the granular parenchyma, favor the congestive state of the organ which accompanies its increase of volume, and augments the obstruction to micturition. The primary weakness of the bladder in the dysuria of old men resides in a quantitative diminution of the anatomical elements. These two processes, that is to say, atrophy of the muscles and disappearance of the elastic fibres, are important factors in the etiology of the symptoms.

Prostatic Calculi.—Leverson recognizes two classes of prostatic calculi: that in which the concrement develops spontaneously within the prostatic tissue, having no connection with the urethra, and that which is frequently the result of some substance (uric acid crystals or vesical calculus) dropping into the prostatic sinus and becoming encysted.

The Bladder.—To measure the bladder capacity in organic inflammatory conditions, Lydston, to prevent surprise and reflex resentment on the part of the bladder, suggests a hypodermic of morphia or an application of eucain or cocain to the prostatic urethra. In those cases where there is a neuropathic disturbance of the bladder the patient should drink moderately of pure water during the evening, and when aroused at night by a desire to micturate should pass water on each occasion in a separate vessel. The greatest quantity obtained at a given micturition represents the maximum capacity of the bladder, from a clinical standpoint.

From the investigations of Halle and Motz it is evident that in pure chronic cystitis the lesions involve all the layers of the bladder wall; that the chronic vesical lesions accompanying strictures differ but little from those of pure chronic cystitis, while in prostatics the lack of power of the vesical wall is largely due to the atrophy of the muscle fibres and their replacement by the large amount of connective tissue. In cachectic patients with neoplasms there is a true fatty degeneration of the bladder walls.

Margoulies calls attention to syphilis of the bladder, which he says is rare only because it escapes recognition. He reports three cases which resisted other treatment but yielded steadily and rapidly to specific treatment.

Schmidt adds much to our knowledge of ulcers of the bladder. He considers those of gonorrheal and non-gonorrheal cystitis, ulcers of tubercular and neoplasm origin, solitary ulcers and the *ulcus cystoscopicum*. Bladder irrigations and instillations are not sufficient to cure ulcers. They should be curetted and cauterized, this being most readily done through the operating cystoscope. In generalized cystitis this method is useless. The bladder should be opened and the entire mucosa curetted. In cystitis dolorosa, besides complete curettage, the bladder should be compactly tamponed and the tamponade should be kept up until the bladder walls have lost their sensitiveness.

Segregation.—Hartman finds that it is useless to have recourse to the del-

icate and sometimes dangerous maneuver of catheterizing the ureter to determine the functional value of each kidney. He presents Luys' segregator, which is composed of two metallic catheters paralleled, between which, in a bed, lies a chain that may be tightened or loosened by a mechanism in the handle. As the chain rises from the curve it carries with it a rubber partition, thus dividing the bladder into halves. The urine from each ureter passes out separately through the catheters.

Cathelin gives the details of his technique and his principal results in segregation with his instrument, which has the shape of an ordinary sound. A rubber membrane with a flexible circumference is made to protude from its convex curve, so that the bladder grasps and fits tightly to the circumference of the membrane, thus dividing the bladder into two equal parts.

Valentine writes of the value of Cathelin segregation, and of some of the objections to and inconveniences of ureter catheterism. Among them may be noted that catheterization demands continual practice, greatest possible skill, and most delicate manipulative tact; in addition, the bladder must have a capacity of at least 50 c. c., must not be a profusely bleeding bladder, and the ureters must be large enough to admit the smallest catheter.

Lewis mentions the advantages of ureter catheterism; in the first place it permits of treatment of the ureters by local applications where segregation does not; in the second place, by it we can differentiate between ureteral and kidney pelvis or kidney disease. He describes his own ureter catheterizing cystoscope. With this instrument the view is direct. By means of the cold lamp, which is at its distal end, one is enabled to work in an air distended bladder. The instrument is provided with a mechanism for distending the bladder with air, and, also, a separate canal for the ureter catheter.

Tubercle Bacilli in Urine.—Bryson announces the following method as an aid in detecting tubercle bacilli in urine: After the patient has emptied his bladder by voluntary effort, introduce a soft rubber catheter into the bladder and preserve in a separate vessel what urine can be thus obtained. Often it is only a small amount that can be gotten, either by hypogastric pressure or by squeezing the catheter so that what urine is in the catheter will come out with it. This urine is now examined by the recognized methods for tubercle bacilli. Being the residual and the sediment in the bladder, it will contain many more bacilli than the urine passed by the patient voluntarily.

Testicle.—Scudder reports eight cases of malignant orchidectomy in five of which the men remained well for several years afterward.

Mauclaire attempts to improve the nutrition and physiologic action of ectopic testicle by pulling it down and grafting it upon the healthy testicle without severing the cord.

Stricture of the Urethra.—Greene emphasizes the fact that by careful treatment of chronic urethritis the formation of stricture may be prevented, that strictures are best treated by dilatation, where possible, and that cutting operations should be done only when required by certain conditions and not with the idea of obtaining better results than by dilatation.

Lydston concludes that the reason for the recontraction of certain strictures after much energy has been spent in cutting and keeping them open is due to a certain personal equation, or idiosyncrasy, in which the patient has the tendency to fibrohyperplastic tissue growth.

Cole publishes a case of double penis, and Duhot a case of double urethra.

ALBUMEN.—Fuhs' test solution consists of equal parts of glycerine and carbolic acid. Mix well together, by shaking and stirring, equal parts of the urine to be tested and the test solution. If the resultant fluid is clear the urine is free from albumen; if turbid, the urine is albuminous.

Huger says there are two classes of cyclic albuminuria: those few which develop a continuous albuminuria, and the vast majority which get well; and that casts found after a very careful examination in a large percentage of cases do not make the prognosis so serious as it is generally supposed.

Aschoff from his investigations concludes that the albumen in nephritic urine is derived from the blood and is different from the specific kidney albumens or that derived from the kidney epithelia.

Sharp suggests that section of the vasa deferentia is the rational means of eradicating from our midst the progeny of a most dangerous and hurtful class of criminals.

PHLORIDZIN TEST—CRYOSCOPY.—Watson doubts the claim made that the separation of sugar from phloridzin takes place in the epithelial structure of the glomeruli and tubules of the renal cortex and in no other part of the kidney.

Methylene blue tests only the renal permeability and not the power of the epithelia to excrete and chemically change a substance. In eleven out of seventy of Watson's cases the phloridzin test apparently furnished unreliable indications. This shows it to be too variable to incline one to urge its adoption in preference to former methods of urinary analysis for estimating the functional capacity of the kidneys.

Bailey says that we must carefully distinguish renal insufficiency from renal permeability. Diminution of permeability to methylene blue does not prove a renal lesion. Nesti regards the methylene blue test for the functioning power of the kidney as absolutely of no value. Bailey concludes that cryoscopy in renal disease would appear to be of the greatest value and a great aid to the surgeon.

GONORRHEA.—Barnes and Hille present a new combination of proteid silver argyrol, which they claim contains 30 per cent. of silver and does not cause any irritation to the urethra even in 5 per cent. solution. Christian confirms this statement, and that it also has great penetrating power for the mucous membrane, and reports thirty-eight cases of gonorrhea that were cured in from two to four weeks. Rucker claims special advantages from treating disease of the urethra by packing it with gauze saturated in a combination of

℞ Iodoform ..... gr. xcv
Balsam Peru ..... ʒ iv
Castor oil ..... q. s. ad ℥ iv

Bartrina uses instillations of adrenaline for differentiating kidney hemorrhage from bladder hemorrhage. If the hemorrhage is from the bladder, adrenaline stops it; whereas, if it is from the kidney, it has no effect upon it. But it is in stricture especially that the drug is most useful. Instillation of it relieves the spasm and congestion which so often prevents the passage of an instrument in this condition.

CATHETER STERILIZATION.—All gum-elastic catheters and bougies may be sterilized by boiling repeatedly and for long periods in saturated (or something less than saturated) solutions of ammonic sulphate or sodic chlorid without essential damage (Cotton).

ENURESIS.—Some cases of enuresis are due to the fact that the child does not empty the bladder, but has residual urine due to spasm, and often as a final result it is necessary to use the catheter on these patients to get a curative effect (Harrison).

DERMATOLOGY AND SYPHILIS.

IN CHARGE OF

MARTIN F. ENGMAN, M. D.

When one sees piled before him the great mass of the published work of the year, he cannot refrain from thinking: How much of this will prove useful, accurate, and will stand the test of further study. How much is useless, wrong, inaccurate, some of it to be thrown away at once; some of it to gain its place in literature, probably a false position, to lead others to erroneous deductions, and at last to be cast aside after years of patient labor. How many thoughts in this mass will put some one upon the glorious path of truth, will prove of benefit to humanity, will repay by its truth its progenitor for his hours of toil, work and trouble. Who knows? I certainly do not, and I feel like putting forth my hand in the same manner as one who puts his into a "grab-bag," a prize may be extracted for review, or a mere empty shell.

There is one good omen which plainly shows itself in every dermatological journal. It portends great things for the future, and that is the care which is being shown in the study of reported cases. To read the society proceedings in the *British Journal of Dermatology*, and the other foreign journals as well, is to learn how much more careful our cousins across the water are in their study of individual cases. In the reports or presentations of cases they bring forward all bacteriological and histological data possible for assistance. This is the proper method for the study of diseases of the skin, and will thus afford a more glorious harvest than any other branch of medicine. It is the constant, routine joining of the laboratory and clinic that will dissipate the mist which clings to our nomenclature, our classification and our knowledge. How many clinics on this side of the water have laboratory facilities? How many clinicians are sufficiently interested to follow their cases into the laboratory? We look to the rare and unique diseases for our incentive to investigation, while the commonest diseases of the skin are still wrapped in mystery. It is through the proper, painstaking investigation of every case, no matter how familiar its symptoms are to us, that something of real definite value can be learned.

We expect careful, minute, long-continued, wearisome work from the Germans, but in the English, an eminently empirical race, with gout and rheumatism and scrofula to always fall back upon when an etiological factor is needed, it is surprising to see how rapidly they are shaking off this "humoral" pathology and are juggling with culture tubes and microscopes and laboratory paraphernalia. They are making of their young dermatologists, bacteriologists and histopathologists, by sending them to Germany to drink in the divine incentive of a German workshop, and they have not only drank deeply and well, but they have digested it, too, and with their practical English minds great things can be expected of the English.

The year 1902 will ever be remembered for the advances made in radiotherapy; in fact, within the year has it become popular and generally practicable. The facile pens of the x-ray operators have filled volumes; the journals teem with reported cures; no one can longer doubt its efficacy and marvelous action in the cases for which it is peculiarly applicable. The pioneer work of Schiff and Frend in Germany, and Pusey in this country, startled the world; to them is due the credit of the introduction of this valuable remedy.

In the spring of 1901 the writer had a case of rodent ulcer which absolutely refused to heal, in his care. About that time Pusey's first articles appeared and I went up to Chicago to investigate the x-ray treatment. Dr. Pusey kindly showed me his cases and apparatus. My patient was immediately sent him for treatment and returned cured. Since then I have tested the efficacy of the rays upon various skin affections with a machine of my own, with satisfactory results. I have never written anything upon the subject, yet I take this opportunity to place myself upon the list of its enthusiastic advocates. No method equals it in certain cases; in rodent ulcer and lupus vulgaris it is, in a way, a specific. Of course, there are many other remedies and methods, but none of them offer the results in these two conditions equal to the rays. The mass of literature and the number of reported cures forces us to this conclusion. The Fensen method is painful, the exposures are longer, the results slower and the apparatus necessary, more expensive and cumbersome than any of the x-ray outfits.

The simultaneous use of pyrogallic acid as advised by A. Gassman may be used with radiotherapy as well as in phototherapy. C. E. Skinner says a measure frequently extremely useful in connection with x-rays, where a broken-down ulcer responds slowly to the rays, is the use of the static brush discharge. Other methods, as curettage (Taylor) or medication, can be often advantageously combined.

The use of the rays in diseases of the hair and its follicle has not been as encouraging as it at first seemed to offer, while its efficacy in patches of chronic eczema, psoriasis and some allied conditions has been marked in the hands of Ziesler, Pusey, Becleve and others. While the therapeutic effect of the x-rays may be extended to various inflammations of the skin, the chief interest here is centered in its action upon the malignant, chronic and disfiguring diseases, lupus, lupus erythematosus, rodent ulcer, epithelioma and sarcoma and allied conditions. There, of course, has been a great sameness and reiteration in the x-ray literature of the year—in the report of cases, their character, the technique of the operation, etc.—but here and there many important points have been mentioned and they may be enumerated as follows: (1) the apparatus; (2) tube; (3) quality and quantity of light; (4) dermatitis; (5) microscopical effects of the radiation.

Upon these five points, no doubt, rests the future scientific delineation, control and indications for the rays. Dr. W. B. Snow has very clearly expressed his views upon the subject of the apparatus, and, as he has had a large experience, it is well worth considering, He believes it matters little what is the source of current which energizes the tube, whether from coil or static machine, so long as it excites the character of ray applicable to the case. He, however, prefers a static machine to excite a high-vacuum tube, applicable to deep-seated conditions, as when a coil is used for this purpose it is perilous to both coil and tube. E. C. Skinner claims that a tube excited by a coil will

produce a dermatitis much quicker than the same tube lighted by a static machine, as a greater volume of rays are produced by the former, therefore it is preferable to use the latter source of energy in deep-seated conditions, as the skin does not so quickly become inflamed. It is very probable the life of a tube is longer when used in connection with a static machine.

The pioneer operators in Europe used coils, therefore the probable source of their present prestige, but from the trend of the opinion of numerous experimental operators, especially in this country, it does not seem to make a great deal of difference as to the source of energy, the principal and vital question being the tube and the quality and volume of the light.

The pioneer operators used a coil and tubes of very low vacuum, and it has been thought that a greater volume of rays are thus emited, and therefore a dermatitis more quickly produced by a coil and low tube; but a tube of high vacuum, excited by a static machine, will produce a dermatitis as quickly if brought closer to the skin and the time of exposure lengthened (Skinner.) The self-regulating tube possesses a longer life than the other forms, and probably is more capable of better adjustment. It is recommended by all operators to not "overwork" a tube; to allow it to "rest" a few weeks will often re-establish its power.

No one has recommended any particular make of tube, each operator, probably, preferring certain makes. It is a well-known fact, cited by several operators, that of two tubes of the same make and equal resistance, one may possess great therapeutic value and the other little.

In the treatment of a case a tube must be selected applicable to that case, and, as Becleve says, the capital factor in the method of application of the x-rays is the quality of the rays used. Of course, this quality depends upon the tube, and slightly upon the source of energy. Becleve remarks in his excellent thesis that there exists a whole scale of x-rays which differ from each other by their power of penetration, on which depends their effects produced upon living tissues. Rays which penetrate very little, being quite entirely absorbed by successively encountered layers and have a deleterious action upon the skin, which may end even in its complete destruction. Rays which penetrate deeply are scarcely at all absorbed by the tissues they traverse and exercise no action, or only a slight one, upon them; they are indifferent. There exists between these two extremes a category of rays which have only mild penetrating power, which, being partly absorbed in certain pathological conditions, can provoke in the thickness of the skin a reaction leading to a curative effect. To produce at his will rays of which he knows the exact penetration is the most important point to the physician. Instruments described by Becleve are designed to determine this point. They are Villard's ampoule, the spintermeter, and the ridio-chrometer of Benoist. The rays absorbed are, therefore, the ones which produce the change in the absorbent tissue, and this effect is produced by the rays themselves and not electric waves (Scholtz). Scholtz experimented upon young pigs, and from these experiments confirms this fact. He says the effect is not only produced at the point of entrance, but also at the point of exit; therefore certain rays must be absorbed at both points, for those passing through do not affect the minor organs. The integumental changes produced by prolonged exposure to the x-rays is well outlined by Carl Beck, and pretty well conveys the general opinion upon this point. Beck divides them into three stages. Those of the

first degree are characterized by hyperemia, the cutis being infiltrated and the temperature raised. Exfoliation takes place in small scales, and there is marked itching of the skin. There is concomitant falling of the hair and retrogressive changes in the glands and nails.

The second stage is marked by the formation of blisters. Inflammatory symptoms are pronounced; the pain and tension is considerable.

The third and gravest stage is characterized by the escharotic destruction of the irridated tissues. They show the signs of dry gangrene of brownish-black color. If the tissue exfoliates by a slow suppurative process, or if removed by surgical means, an ulcer remains which is very slow to cicatrize. These changes or the different degrees of this so-called "dermatitis" occurs in from ten to fourteen days after exposure. In some individuals this dermatatis may occur in a few exposures, whereas others may seem to possess an immunity which unfortunately often proves to be apparent only. There are certainly some who have a decided idiosyncrasy and are most readily burned. Dr. E. A. Codman has investigated the literature of x-ray burns very thoroughly, having reviewed all of the reported cases. He says that recorded cases show a minimum limit for safe exposure, but they also show a tremendous variation in the reaction of individuals to apparently the same conditions. Conditions which produce a severe lesion in one case, cause only a slight reaction in others. Kienboeck and others assert that the important factor is the degree of the vacuum of the tube—its softness or hardness, but Codman is strongly of the opinion that this element of variation lies in the susceptibility of the patient, the dryness or dampness of the skin; in his electrical resistance; in his anemia or plethora; in the acidity or alkalinity of the sweat; in his vaso-motor irritability, or in some other of the multiplicity of conditions which make a living organism different from a glass tube stimulated by a current of electricity. Codman places ten minutes at six inches distance a safe standard of exposure.

Pusey treats his patients with the greatest caution, using a low tube and short exposures, while others advocate the rapid production of a dermatitis to obtain quick therapeutic effect. As all parts are safely protected by a proper mask, the favorite material being lead foil or thin sheet lead, it probably makes little difference how rapidly the reaction is produced, unless it is for cosmetic purposes; a slower process obtains the best cosmetic result. It must be remembered though that it is not always necessary to produce the objective clinical dermatitis to produce therapeutic reaction, as cited in cases reported by Duncan, Pusey and others. These cases improved after exposures had ceased, they having never during the treatment displayed any reaction whatever. But in the majority of observed cases improvement has more rapidly advanced after the production of a marked inflammatory reaction. This dermatitis is always significant of the desired specific action of the rays upon the irridated tissues and is histologically and clinically an inflammatory process.

Carl Beck assumes, in discussing the pathology of x-ray dermatitis, that if in chronic inflammatory processes constriction of the vessels takes place, the papillæ starve. A hair extracted after prolonged irridation is found to have lost its structure. The skin shows thickening of the tunica intima of the small blood vessels; fibrous tissue in reticular arrangement is deposited and the tunica muscularis and tunica adventisia are affected in the same manner.

The most elaborate work of the year upon the histo-pathologic changes pro-

duced in healthy and diseased skin by the x-rays is that of W. Scholtz. He found that distinct alterations did not appear until about the sixth day after exposure, when he noticed a swelling and edema of the epithelial cells, accompanied by a clumping and shrinkage of the muscle, while vacuoles appeared here and there in the protoplasm of the cells. Many of the cells seemed to be in the process of amitatic demission. Mitoses were rarely seen. The corium was markedly edematous, the fibers swollen and stained badly. The connective tissue cells seemed to be affected in much the same way as the epithelial; also the cells of the appendages to the skin and those of the intima of the larger blood vessels. An inflammatory collection of leucocytes were observed about the vessels beneath the epidermis, and here and there between the degenerated cells. Mast cells were plentiful. Toward the center of the lesions were superficial vesicles in the stratum corneum, upon rupture of which ulceration seemed to quickly follow.

In other words, the x-rays cause upon healthy skin a cellular degeneration which is followed, after it reaches a certain stage, by an inflammatory reaction, the blood vessels become dilated, and an extravasation of serum and leucocytes supervenes, resulting by phagocytosis in the complete destruction of the degenerated cells. In irridated lupus tissue Scholtz found about the same degeneration and inflammation.

Carl Beck thinks that the changes which take place in a malignant neoplasm under the rays is of the nature of a chronic inflammation. The nutrition of the superficial strata is disturbed, the cells starve, and, if over irridation is continued, necrosis may result. Some sections of carcinoma show colloidal changes.

We have not heard much during the year of the "cancer parasites." The excitement and hysterical sensationalism has subsided. The cure of epithelioma by the x-rays does not strengthen the parasitic theory, as several (among them Scholtz) have demonstrated that radiation of cultures of organisms does not even retard their growth. The so-called cancer parasite has been very thoroughly discussed in the second annual "Report of the Cancer Committee" to the Surgical Department of the Harvard Medical School. The report consists of seven sections: (1) coccidium infection of rabbit's liver, by Tyzzer; (2) molluscum contagiosum, by White and Sobey; (3) culture experiments with malignant tumors, by Richardson; (4) free pathogenic torulæ (blastomycetes), by Weiss; (5) the relation of blastomycetes to cancer, by Nichols; (6) cell inclusions in cancer and in non-cancerous tissue, by Greenbough; (7) a summary, by Nichols.

From the results of the work pursued by these investigators it is concluded that:

1. The lesions produced by the coccidium oviforme is essentially a process of chronic inflammation, and is not analogous to the lesions seen in cancer.

2. The lesion seen in molluscum contagiosum is characterized by certain changes in the epidermis, is not due to the action of a protozoon, and is not analogous to cancer.

3. The so-called "blastomyces" ("saccharomyces") of Sanferlice and Plimmer are torulæ.

4. The lesions produced by these blastomyces (torulæ) are essentially nodules of peculiar granulation tissue, are not cancerous, nor in any sense true "tumors."

5. Blastomyces are *not* constantly present in human cancers.

6. The peculiar bodies seen in the protoplasm of the cancer cells are not parasites, nor the cause of the lesions, but probably are in part at least atypical stages of the process of secretion by glandular epithelium. Although the blastomyces have failed to establish their identity in the etiology of cancer, yet they still remain of great pathologic interest. Numerous additional cases are reported here and abroad, since their presence is now so easily demonstrable. Meneau discussed the subject in a very elaborate manner with a complete review of the reported cases. He concludes that the disease has been most frequent in America, especially in Chicago; men are more liable to it than women; it is most frequently met with in the middle-aged, and in several cases a family history of tuberculosis has been noted. Dr. Walker, of Chicago, reports an additional death of general infection from a blastomycosis cutis; the third, I believe, in this country.

The production of carcinoma in nevi, or the so-called nevi-carcinoma, is, according to Ravogli, a carcinoma on top of a nevus, and the name has no particular interest to him as to the origim of the growth. It is a frequent occurrence, not on account of the cells remaining in the structure of the nevus in the embryonic stage, but on account of the frequent trauma to which they are exposed, and their soft stroma easily reacts to irritation. He believes in the parasitic origin of all carcinoma, and therefore this form is likewise due to the same cause, the pigment being only a coincidence and does not produce or increase the malignancy.

The investigations of Pilger into the origin of angioma cavernosum are interesting, in that he thinks trauma causes rupture of one or more vessels of a part, and the blood as a result lies free *en masse* or as single corpuscles between widely separated connective tissue fibers; the connective tissue cells, because of increase of pressure, become converted into endothelial cells which line the cavities. Fick offers a contribution to the knowledge of soft pigmented nevi; he believes that the increase of pigment in the nevi is not the cause of the formation of the tumor; the formation of nevus cells and increase of pigment are coincident occurrences, but are not combined incidents. The cells contain pigment only when they are in proximity to melanoblasts. On the other hand, Judalwitsch believes that simultaneously with the appearance of the pigment, hyperplasia of the cells takes place. Sergent also places great stress upon the office of pigment. Leser has noticed angiomata upon the skin of patients affected with carcinomata of various organs, and considers himself entitled to conclude that they are of diagnostic aid. Gebele, who examined twenty-one cases of carcinoma and two hundred of a number of other diseases, regards angiomata of this type as a sign of retrogressive change, most marked in old age, and of no value for purposes of diagnosis.

Crocker, of London, describes a new disease which clinically and histologically appears to correspond with the pathological condition called granuloma, and as the patches have a tendency to annular formation he gives it the name of granuloma annulare. Six cases are reported. The distribution is chiefly on the backs of hands, wrists, fingers and neck. The lesions have been noticed with warts, and some of them take on a warty appearance. Usually they begin as firm nodules or papules of slow development, which tend to form circles by

aggregation or coalescence; some of the primary lesions remind one of lichen planus.

Great interest should be attached to the case of hyphomycetic granuloma of Schamberg. He reports one case and reviews very thoroughly the literature of tumor formation caused by the trichophyton fungus. These cases, Dr. Schamberg remarks, are by no means rare; they not infrequently present a papillomatous aspect and may suggest blastomycosis, tuberculosis cutis or a malignant neoplasm. The fungus may not be found in the pus but is demonstrable in the tissues.

W. G. Erving reports six cases of actinomycosis hominis, making a hundred reported American cases. He recommends free incision with drainage, with potassium iodide internally. Curettage or complete excision is preferable, if possible.

M. P. Ravenel adds a fourth case to the literature of tuberculosis cutis hominis caused by the inoculation with bovine tuberculosis while making a post-mortem on tuberculous cows. This is of especial interest since the remarks of Koch upon this subject in London.

The question of tuberculosis of the skin cannot be mentioned without thinking of the work of three Englishmen upon lupus erythematosis, a disease often reputed to be of tuberculous origin.

W. B. Warde has published this year two exceedingly interesting studies upon lupus erythematosis, the disease which Crocker calls the "imitator." His last is a spirited and well-written dissertation upon the etiology of the disease. He believes, from a careful histological and clinical study of many cases, that lupus erythematosis is not a distinct pathological entity; that it is the exhibition of a chronic inflammatory process, associated with a pernicious edema, paralysis and dilatation of the smaller blood vessels, ending eventually in degeneration and destruction, together with granulation tissue which forms around them in the usual endeavor to repair. He thinks this lack of tone occurs in those of feeble circulation occurring in a certain class of individuals who frequently also have hypertrophic or atrophic rhinitis. The pathological changes in the skin of such individuals may be induced by many irritants or traumata. Sequeira and Balean, from a study of seventy cases, argue with Pick that the evidence does not justify one to say that the discoide form of lupus erythemotosis is of tuberculous origin. They are, however, strongly inclined to believe that the more acute disseminate types of the disease has more claims to a tuberculous source, as 80 per cent. of their cases of this form was associated with a tuberculous history. That there was a severe toxemia was evidenced by the frequent occurrence of albuminuria in these cases. The limitations of the areas affected affords them strong evidence of its angio-neurotic origin. Feeble circulation and local irritation seemed also to be etiological factors. These three articles are of exceeding value for their generalization and the clinical acumen they display. The English are particularly fitted for this kind of work. These particular ideas in relation to lupus erythematosis are not exactly new, but the forcible way in which they are brought forward impress one with their practical value and common sense.

Another common-sense point which is forcing itself upon the view of dermatologists through its frequent occurrence, is the fact that bullæ in lichen planus is not such an astonishing or unlooked-for occurrence. If one has studied

sections of the disease one can readily see different degrees of serous exudate, therefore why not, once in awhile, bullæ. It was thought that the arsenic which is usually prescribed in the disease was the probable cause, but out of the seventeen cases collated by Arthur Whitfield, nine had not taken the drug. Allen believes that bullæ may at times be an essential part of the process, and he is undoubtedly correct, for serum exudate is an essential part of the process in the severer cases dependent upon vessel tone, which may go on to bullæ formation upon any additional injury.

How much apparent mystery can be cleared up in dermatology by the proper use of the microscope; the clinical use of it! To us it is exceedingly instructive to hear an observer like C. J. White, of Boston, say after a study of four hundred and eighty-five cases of nail disease, that at the present time nobody can claim sufficient knowledge to make a positive diagnosis of these conditions without the aid of the microscope, unless the skin is attacked, for the same lesions appear over and over again in almost all of the diseases. The same remarks may apply to numbers of other conditions, to seborrhea and ring-worm, to blastomycosis cutis, tuberculosis cutis, syphilis vegetanti, and in this latter group H. G. Anthony has added another condition for diffentration, dermatitis verrucosa, probably caused by the bacillus coli communis. From his description this case presented symptoms similar to a tuberculosis verrucosa cutis, in which from the pus he found pure cultures of the colon bacillus.

Albert Billet reports an interesting case of intermittent erythema scarlatiniform of malarial origin, which is very similar to a case reported by Doctor Crevelling, of this city. It is strange that more cases of diseases of the skin with this etiology do not occur. They are a frequent occurrence in the practice of the writer, who reported eighteen cases of various types of the acute urticarial erythema and neuritic groups due to the plasmodium of malaria.

Riesman and also Winfield add some additional cases. It is very probable if the search of the blood was diligently made in certain conditions with a periodicity, that the literature upon this etiological factor would markedly increase. The bacteriology of skin diseases has not been greatly enriched this year.

Schamberg's finding of the microbacillus of Sabourand in the secretion of the sebaceous glands of the nose in apparently normal skin proves nothing. It neither detracts or adds anything to the theory of Sabourand, as to its pathogenicity. So do we find staphylococci in the normal skin, but we know they cause diseases of which people die. The colon bacillus is always found in the intestines and is usually a law-abiding and honest citizen, but he has been known to become violent and kick up a local disturbance or wander to parts which violently repulse his invasion and pus is raised. Why should we ignore the microbacillus, the staphylococcus of various hues, the streptococci, and say as we wisely shake our hoary locks, frosted with ages of dermatologic lore: "Normal parasite of the skin" (meaning it can do no harm), or "secondary infection, merely, my dear sir," meaning "look further for some peculiar and unknown 'bug;' the normal inhabitants, we know all their tricks?" Yes, but the normal inhabitants are often abnormal inhabitants, and when in this state are capable of doing peculiar and as yet unheard-of things. They will bear watching.

LARYNGOLOGY AND OTOLOGY.

IN CHARGE OF

WILLIAM E. SAUER, M. D.

The past year has been so productive in literature on the above subjects, that it will be possible to touch only briefly on the most important points.

To the already large amount of literature on the accessory cavities of the nose many valuable additions have been made. The reason the post-mortem reports have shown so many diseased sinuses, of which there was no suspicion during life, is believed by Lambert Lack and others to be due to inaction of the ciliated epithelium lining these cavities, just before death, allowing accumulation of secretions which would have been discharged had the patient lived, and is not the result of a chronic suppuration.

On the radical treatment of the chronic empyemata of the maxillary antrum and the frontal sinus there has been a great deal of discussion.

The Kuhnt-Luc operation in frontal and the Caldwell-Luc's method in maxillary sinus disease have given the best results, though those operations are to be tried only when simpler methods fail.

A new instrument similar to Nitze's cystoscope has been constructed by Reichert to examine the antrum of Highmore, after having made a small opening either in the fossa canina or alveolar process.

The experiments of Claus confirm that the method of transillumination, as a diagnostic agent, is misleading and cannot be relied upon.

The correction of septal deflections has been thoroughly discussed from etiology to treatment. As for the latter, new operations as well as modifications of old ones have been brought out. Freer strongly advocates the resection of the cartilaginous and a crushing of the bony septum. This operation, which has been in practice for a number of years, but not generally followed by rhinologists owing to the difficulty of the technique, has been simplified by the invention of specially constructed knives or spuds. The advantages of this operation over the others are that it can be done under local anesthesia, under direct supervision of the eye, there is no force used and the parts are not so roughly handled. The mucous membrane being cut through on the one side only, and after the cartilage and as much of the bone as necessary removed, is brought down in its former position. The patient is able to attend to his duties in from one to three days. There is not the inconvenience of wearing nasal splints and the result is certain. The removal of the septum does not endanger the shape of the nose.

When the cartilaginous septum only is deflected, Dundas Grant advises passing a needle through the cartilage on the concave side, anterior to the deflection, which is then used as a lever to force the convex part into the concave side, and then the needle is pushed through the posterior end of the cartilage to keep it in position. Cuts are then made by Moure's shears horizontally, below the deflection, then obliquely in front, and above it. The cartilage is then manipulated to encourage overriding. The ends of the needle are covered with rubber and left *in situ* for a week when it is removed. The simplicity of the procedure recommends itself in a limited number of cases.

There are numerous reports of good results in correcting deformities of the nose by the injection of paraffin. According to the method of Gersuny, the danger of sloughing and embolism of the lungs have been overcome by allowing the melted paraffin to slightly cool in the syringe, and then injecting into the tissues in the form of a fine thread, being careful not to inject too much at a time, so as not to produce too great a tension of the parts.

Hay fever has received its usual share of attention, and some new ideas as to etiology and treatment have been advanced. Fink believes hay fever and allied affections to be due to an affection of the trigeminus, involving principally the secretory fibers in the accessory cavities of the nose, the antrum being the main seat of the trouble. Fink claims to have effected a cure in eleven cases by dusting aristol into the antrum through the natural opening in the nose. He admits the difficulty attending this procedure in some cases, but claims it can be done. Ingalls' success with the internal administration of the fluid extract of the pollen of rag weed and golden rod, as advanced by Curtis, was a relief of twelve or sixty-seven per cent. of his cases.

Nasal diphtheria in which there is only a mucopurulent discharge from the nose, closely resembling an ordinary coryza, but containing virulent diphtheria bacilli, has been proven by Neuman to occur much oftener than with membrane formation. The necessity for a bacteriological examination in suspicious cases of coryza is apparent.

The etiology of "genuine ozena" is still not understood, and the treatment in so far as an absolute cure is concerned is very unsatisfactory. Copper electrolysis has not proven to be what was first reported. Recently injections of paraffin have been made into the turbinate bodies in order to decrease the lumen of the abnormally large nasal passages, with the result that the odor and the discharge have been greatly diminished. The French writers reported what amounts to practically a cure. DeFrancesco reports two cases which had resisted all treatment but were completely cured after they had gone through an attack of erysipelas. After three years there had been no relapse.

That there is a dysmenorrhea of nasal origin there is no longer any doubt. Following the good results reported by Flies, Schiff, Holbrook and others, come those of Ephraim, who reports a relief in eighteen out of twenty-four cases by intra-nasal treatment.

A procedure that is not new but one that has been resurrected, is the dilatation of the lachrymal duct through the nose. Polyak of Budapest has invented a set of sounds with which he can dilate the duct through the nose, and also irrigate the same with his special canulas.

The advantages of this method are that the duct can be rapidly and successfully dilated, whereas from above the dilatation is never complete. The largest Bowman sound is only 1½ mm. in diameter, while the duct has a diameter of from 3 to 4 mm. The author's largest sounds are from 3 to 4 mm. in diameter and blunt at the ends, thus the danger of making false passages is greatly lessened.

The indications for the retrograde dilatations are:

First.—In cases which are not of long standing.

Second.—In cases of nasal origin.

Third.—In cases where dilatation from above fails to relieve the stenosis, owing to the obstruction being in the lower half of the canal.

Its contraindications are:

First.—When the stenosis is known to be high up in the canal.

Second.—In advanced diseases of the lachrymal sack.

Third.—In infants and children before the age of puberty.

That adenoids are a factor in the etiology of enuresis nocturna has long been known, but this theory has recenty been subjected to severe criticism. Fischer has carefully studied 716 adenoid cases and found that 106, or over fourteen per cent., had enuresis. He found that the enuresis was not due to the adenoids themselves, but to the resulting nasal obstruction, as was proven in a number of cases.

The relation which rheumatism and tonsillitis bear to each other is still a much mooted question. It is known (Thompson) that a certain number of cases of acute rheumatism are preceded by an angina, that they both may have etiologic factors in common, that the tonsils may be a port of entry for the rheumatic virus. The question requires further research in differentiating the various forms of angina and discovering the true nature of rheumatism.

On the influence which the removal of enlarged tonsils has on the voice there is still a difference of opinion. Some authors maintain that their removal is beneficial in all cases, others that the voice may be greatly changed, this being especially true in the case of soprano or tenor singers. However this may be, it is generally conceded that the voice is in a better condition to be trained after the removal of the tonsils than when they are present.

Observations on singing birds have proven that the "larynx of a singer" means nothing. A well-developed larynx is no more common to a singer than to an actor or a preacher. Avellis says that song is a "creation of art" and not a production of strength, and that one can no more judge the talent of a singer from the appearance of his larynx than one can judge the talent of a violinist by looking at his hand.

The correction of chronic stenosis of the larynx caused by cicatrization has been under discussion recently. Unfortunately, no new methods have replaced the slow and tedious methods of dilatation by means of Schroetter's and A. Dyer's tubes. These have to be maintained regularly in order to make the dilatation permanent.

The results of the treatment of laryngeal cancer with the x-rays have not been very flattering. To our knowledge only one successful case has been reported. Some thirty treatments in all were required to effect a cure. The case was reported by Scheppegrell.

In operations requiring general anesthesia some operators, instead of placing the patient in a recumbent position, now operate with the patient in an upright position; chloroform or ether are administered. Patients have been kept under the influence of the anesthetic as long as an hour without any serious symptoms arising. The advantages of this position are that the operator is thus enabled to work under strict supervision of the eye and accomplish exactly what he wants under full anesthesia. For the removal of adenoids the patient need not be under complete anesthesia, owing to the short duration of the operation, and it is in this operation that the upright position has special advantages.

The question as to the value of the electric bougie in the treatment of

stricture of the eustachian tube is still undecided. The majority of the authors report that their results with it were no better than with the ordinary celluloid bougie; on the other hand, some authors report very good results.

A new factor in the etiology and pathology of a number of unexplained cases of facial paralysis has been called attention to by Reek, who found that a "non-suppurative" catarrhal otitis media of so mild a type as to be unobserved by the patient is often responsible for a number of those cases, and after proper treatment is directed toward the ear a speedy recovery will result.

Among the new devices and methods for the treatment of chronic catarrhal otitis media may be mentioned ozone, which is generated by the means of an electric current acting on a Ruhmkorff's coil to which the ozonizing tube is attached. The ozone so generated is pumped into the middle ear through a eustachian catheter. Stokes reports excellent results with this method of treatment. Another method which is not new, but one that has received a great deal of attention recently is the hot air treatment, which is applied both through the external auditory canal as well as through the eustachian tube. For the application through the former the Ferry Heater Co. have constructed a very practical instrument; for the latter several appliances have been constructed which have given satisfaction, viz., one devised by Bronner.

The ice coil which has been considered almost a sovereign remedy in aborting acute inflammation of the mastoid process has been the subject of an attack on the ground that its action is only superficial and that the inflammatory process goes on deeper down, undisturbed, while the anesthesia produced by the cold is apt to mask the symptoms and thus mislead the physician. This is, however, not borne out by clinical experience.

The radical mastoid operation is finding a wide field of application and each year its opponents are becoming more and more convinced as to its value. The percentage of cures, so far as a cessation of the discharge and the inflammatory process, is conceded as higher, owing to our more perfect methods of technique. The improvement in the hearing is not so marked as was first reported, as was recently shown in Buhe's analysis of one hundred and three cases operated upon in Schwartze's clinic. In some cases a large retroauricular opening is maintained until healing is complete, thus leaving an unsightly defect. The same have been recently very ingeniously closed by the injections of paraffin according to the Gersuny method.

That it is not always necessary to open the antrum in acute mastoiditis is shown by the results obtained at Politzer's clinic. The antrum is not to be opened if its walls appear normal, but it should be opened in all cases where there is a sudden cessation of the discharge. The healing is much more prompt when the antrum is not opened.

The value of lumbar puncture as an aid in the diagnosis of the intracranial complications of otitis media have been fairly well demonstrated. The fluid in inflammations of the cerebrum and spine and their meninges is turbid and even purulent, due to an increase of the leucocytes or an admixture of pus corpuscles and bacteria. In tubercular meningitis the fluid may be clear although containing bacilli. In complicated cerebral abscess the cerebro-spinal fluid is clear but increased.

Among the new drugs which have been found to be useful are the following: Ichthargan, a combination of ichthyol and silver containing 30 per cent.

of silver and 15 per cent. of sulphur, has much greater penetrating power than nitrate of silver and is less toxic. It is used in from 2 to 10 per cent. solutions in acute and chronic catarrhal conditions of the nasal and pharyngeal mucous membranes, and is said to be especially useful in atrophic rhinitis. Its value has been overestimated.

Menthoxol and camphoroxol contain as their active ingredient a 3 per cent. solution of peroxide of hydrogen, combined with menthol, camphor and alcohol. The hydrogen is liberated on coming in contact with the pus, leaving the menthol and camphor in solution with the alcohol. They are non-irritating and used in from 10 to 50 per cent. solutions in all suppurative conditions of the nose and ear. Camphoroxol has proved to be a very valuable remedy in chronic suppurative otitis media.

Argyrol "silver vitellin," containing 30 per cent. of silver, is very valuable and non-irritating and is used in from 10 to 50 per cent. solutions in catarrhal conditions of the nasal, pharyngeal and laryngeal mucous membranes; especially good results have been obtained in acute laryngitis.

Among the list of new books that have appeared during the year are the following: Diseases of the Ear, Nose and Throat, by Henry Gredle, M. D.; Atlas and Epitome of Otology, by Gustave Bruhl, M. D.; A Manual of Otology, by G. Bacon, M. D.; Diseases of the Ear, Nose and Throat, by C. P. Grayson, A. M., M. D.; Lehrbuch der Ohrenheilkunde, by Prof. Dr. L. Jacobson and Dr. L. Blau; a new fourth addition of a Text-Book of the Diseases of the Ear, by Prof. Dr. Adam Politzer, and a new seventh addition of Die Krankheiten des Ohres und deren Behandlung, by Arthur Hartmann.

OPHTHALMOLOGY.

IN CHARGE OF

JOHN GREEN, JR., M. D.

REFRACTION.—"Kinescopy" is the name given by Holth to a new method of determining the refraction objectively. It consists, essentially, of the observance of the motion of fixed objects when seen through a narrow fissure in a moving disk. In hyperopia, the object seen is given an apparent motion contrary to that of the disk; whereas the opposite obtains in myopia. The error of refraction is determined by the lens required to make the object seem motionless. The amplitude and rapidity of the movements are directly proportional to the amount of ametropia. Priestly-Smith affirms that every myopia should be suspected of a tendency to increase until time has proved the contrary. The disease is likely to be progressive (1) in myopia in very young patients; (2) in high-grade myopia; (3) after general disease; (4) with excessive close work. On the other hand, hereditary myopia is often benign.

Wettendorfer has found in twenty-seven eyes of fourteen myopes concentric zonular defects of the visual field for white and red, which he ascribes to stretching of the choroid and retina at points where they are most firmly attached, viz., at the entrance of the posterior ciliary arteries, optic nerve, etc.

The operation for removal of the crystalline lens in high-grade myopia continues in favor. Operation is contraindicated (1) in M. less than 15 D.; (2) in macular lesions. Truc recommends aspiration-suction in the extraction of the lens after one or more preliminary discissions.

In nine hundred and forty cases of perverse astigmatism, Steiger has found visual acuity considerably reduced, even when the astigmatism was of low degree. In unilateral astigmatism, vision was more reduced and less capable of correction by glasses than in bilateral astigmatism of the same degree.

Strabismus.—Worth believes that the potential factor in the cause of strabismus is the defective or non-development of the fusion-sense, and considers the exercise of this faculty of the first importance. According to Javal, amblyopia ex anopsia is never found in a patient under six years; an opinion concurred in by Derby, who insists that every effort should be made to develop central vision in the amblyopic eye. He advocates orthoptic treatment before and after operation. Secondary insufficiency of divergence accounts, in Wootten's opinion, for the persistence of squint in many cases. He advocates advancement of both externi to the corneal margin without tenotomy of the interni.

Diseases of the Lids.—Terson regards palpebral horns, although of benign character, as probably related to other tumors, more especially carcinoma. In an extensive epithelioma of the lid, which had destroyed the eyeball and extended across the bridge of the nose, Sweet obtained great improvement by thirty-six exposures to the x-ray. He uses a low vacuum tube from six to ten inches from the diseased tissue, each *seance* lasting five to ten minutes. Hola found xerosis bacillus in twelve cases of chalazion, and believes we should no longer regard these tumors as retention cysts. He assumed that this microorganism, which is normally resident in the conjunctival sack, entered the tissues by rubbing. The very rare filiform anchyloblepharon was observed by Oblath in an eight-day-old child. He regards the condition as a partial persistence of the physiologic band uniting the lids during intra uterine life.

Conjunctiva.—Monphous observed a delicate vascular triangular membrane, the base situated in the upper cul-de-sac, the apex adherent to the mucous membrane and tarsal cartilage of the upper lid. A similar, smaller growth obtained in the fellow eye. The growths were regarded as *palpebral* pterygia. Periodic acute exacerbations of trachoma in Egypt were found by Morax to be due to mixed infections with the Koch-Weeks bacillus, and occasionally the gonococcus. Kymowitsch believes in the identity of the influenza bacillus and the Koch-Weeks bacillus, and regards acute contagious conjunctivitis as an "influenza of the eye."

Lacrimal Diseases.—Acute dacryocystitis in trachoma is explained by Raehlmann as the result of the entrance of pyogenic material into the submucosa, which has been exposed by the ulceration and sloughing of true trachoma follicles occurring in the sack. Extirpation is recommended.

Antonelli prefers gelatine protargol sounds to protargol injections after dilating strictures of the nasal duct. Augieras has found that excision of the caruncle is often efficacious in epiphora persisting after free opening of the lacrimal passages. Probing the lacrimal duct from the nose is advocated by Polyak: (1) in recent disease; (2) where the affection is due to a nasal trouble that has healed; (3) where the stenosis lies in the lower part of the canal. It is very

painful and is inapplicable in children on account of the small size of the nasal passages.

Diseases of the Cornea.—The occurrence of typical interstitial keratitis in the third generation—*i. e.*, in the offspring of an hereditary syphilitic—has been noted by Strzeminski, who gives an outline of the symptomatology of ocular syphilis in the third generation. Masugi finds that muriate of cocain retards healing of corneal wounds by disturbing karyokinesis of the epithelial cells, and possibly, also, by a special toxic effect. Perrin advocates antiseptic injections into the anterior chamber in hypopyon keratitis, and gives preference to cyanide of mercury 1:5000. In extensive suppurative keratitis complicated by dacryocystitis Buller ligated both canaliculi and obtained an excellent result. An essential necrosis implicating dense corneal scars and staphylomata has been called by Fuchs "atheromatous ulcer of the cornea." Panophthalmitis may ensue as the result of the sequestrum gaining entrance into the interior of the eye. Terrien notes that the pure form of congenital opacity of the cornea is due to intra-uterine inflammation incident to nutritional disturbance of the placental circulation.

Affections of the Lens.—For the purpose of artificially ripening cataract Alessandro makes five to ten punctures of the anterior lens capsule with a knife-needle introduced at the outer third of the corneal margin.

Diseases of the Iris.—Terrien describes four forms of cysts of the iris: (1) serous (traumatic and idiopathic); (2) pearly (traumatic in origin); (3) entozoal (cysticercus) and (4) dermoid. Tuberculosis of the iris and cornea was cured by Koster by injecting air into the anterior chamber after evacuation of its contents.

Diseases of the Choroid.—Fuchs has noted detachment of the choroid after cataract extraction and iridectomy. It is to be suspected if the anterior chamber becomes shallow after having been re-established. A rigid sclera and the character of the section are factors in its production. In tuberculosis of the uveal tract Fromaget advises amputation of the anterior segment of the eyeball and evisceration in preference to enucleation. Bruns concludes that the so-called keratitis punctata is merely a symptom of disease of any portion of the uveal tract, probably most often of acute exudative choroiditis.

Sympathetic Ophthalmia.—Gasparrini's experiments lead him to the conclusion that sympathetic inflammation is due to toxins, thus agreeing with the view advanced by Selenkowsky in 1900.

Glaucoma.—Uribe-Troncoso in experimenting on rabbits found that intraocular tension increased with blood pressure, and also with increased barometric pressure. In nineteen cases of glaucoma he found the density of the aqueous humor and the amount of mineral matter higher than normal, and believes that alteration in the quality of the intraocular fluids is the important factor in the production of the hypertension in glaucoma.

Stolting explains the loss of corneal luster frequently observed in glaucoma by the presence of lymph in the corneal lamellæ, due to the displacement of the pectinate ligament. As to the value of excision of the superior cervical ganglion, the following conclusions of Weeks express the position of the more conservative practitioners: (1) sympathectomy is of no value and may be harmful in acute glaucoma; (2) in hemorrhagic glaucoma it may be of some value and should be

tried; (3) in subacute and simple chronic glaucoma iridectomy and sclerotomy should first be employed; if these fail, sympathectomy may be resorted to.

Diseases of the Retina.—Thompson discusses the actual and theoretically possible causes of obstruction in the central artery of the retina: (1) embolism; (2) hemorrhage into the optic nerve sheathe; (3) primary thrombosis; (4) spasm of the muscular walls of the artery. In an examination of three hundred and eighty-three deaf-mutes, Mulder found in eleven typical signs of retinitis pigmentosa. He regards deafness, deaf-mutism, retinitis pigmentosa and idiocy as symptoms of one and the same disease of the central nervous system. In eight cases of retinal detachment Gallus employed the method of Doe—cauterization of the sclera over the point of detachment and subconjunctival injections of salt solution. All cases due to primary subretinal exudate became reattached. Although some cases relapsed, vision was generally improved. Helborn observed partial detachment of the retina in both eyes of a I-para in the eighth month of pregnancy, in the course of an albuminuric neuro-retinitis. After artificial delivery, the neuro-retinitis subsided and the retinæ became reattached with return of normal vision. The so-called "hole in the macula" was noted by Byers three years subsequent to a blow on the eyebrow.

Diseases of the Optic Nerve.—Hawthorn believes that optic neuritis occurring in the course of chlorosis is due to intracranial thombosis. Mohr reports two cases of optic neuritis caused by iodoform poisoning. In an analysis of eighty-eight cases of cerebral and cerebellar tumors Singer concludes that optic neuritis is frequent in patients under forty, and becomes increasingly rarer after that age.

Injuries.—In infected perforating wounds of the eyeball, Schirmer touches the edges of the wound with the galvano-cautery, uses subconjunctival injections of sublimate and salt solutions, and introduces an iodoform rod into the anterior chamber. He advocates the thorough and prolonged exhibition of mercury, preferably by inunction and intramuscular injections. Wokenius has had great success in infected perforating wounds of the sclera, with powdered iodoform introduced into the vitreous. In two cases of infected injury going on to panophthalmitis Roselen passed a glowing platinum point into the vitreous in different directions for three to four seconds. One eye required subsequent enucleation, the other, while sightless, retained its form.

Schmidt reports the cure of beginning panophthalmitis following extraction by the introduction of an iodoform disk into the anterior chamber.

Brandenburg notes the high percentage of eyes in country dwellers which are lost through the infection of a superficial corneal wound from the lacrimal sack.

Operations.—Parinaud and Roche offer a modification of Krœnlein's operation for tumors of the orbit in which the cutaneous incision forms an angle with its apex pointing upward. The following advantages are claimed: (1) More room; (2) lessened danger of infection, owing to distance of wound from angles of the eyelids; (3) no scarring or distortion of eyelids. Promiscuous enucleation is condemned De Wecker, who has resorted to tattooing of the sightless stump with good cosmetic results. Conjunctival, Thiersch and epithelial lip flaps have been utilized by Gifford to cover the sensitive cornea of sightless stumps, thus permitting the wearing of a shell-eye. In acute glucoma with total abolition of the anterior chamber and disappearance of the iris under

the scleral edge of the cornea Burnett approaches the anterior chamber by successive strokes of a Graefe knife, following the curve of the corneal base. The wound gives way at some point, followed by a gush of aqueous and sometimes by prolapse of the iris. The section is completed by a bulb-pointed triangular knife. In a case of unilateral exophthalmos with optic neuritis Rollet made an "exploratory orbitomy" by forcing the superior maxilla downward. The entire orbit was thus exposed without dividing the ocular muscles. Lagrange reports ten successes in eleven attempts to transplant a rabbit's eye into Tenon's capsule.

Wokenius describes Kuhnt's subconjunctival discission of secondary cataract: the knife is entered three to four m. m. from the limbus corneæ and passed through the sclera into the peripherny of the anterior chamber. It is then advanced into the capsular membrane, keeping parallel to the plane of the iris, and the membrane divided by a sawing motion. The advantages claimed are (1) slight reaction; (2) minimum danger of infection; (3) avoidance of wounding the vitreous.

THERAPY.—Darier recommends dionin in two per cent. solution as an antiseptic, analgesic and lymphagogue application to the conjunctiva. It hastens absorption of pupillary exudates and favors mydriasis. It is especially effective in quieting pain where local anesthetics are of no avail. Electrolysis is recommended by Levisseur as an effective treatment in xanthoma of the eyelids, and by Lor in the treatment of pannus. Protargol in twenty per cent. solution is preferred by Lewitt as a prophylactic against blennorrhea neonatorum. Jackson recommends trikresol 1:1000 as a basis for collyria and harmless antiseptic. Jequiritol, according to Hummelsheim, possesses all the properties of jequirity, and is more accurate in dosage. Kirchner finds that aspirin controls pain in acute iritis and iriclocyclitic.

Hoppe suggests that soft gelatin tubes containing lanolin and holocain be kept in workshops where men are exposed to lime burns When the accident happens, the small end of the tube is thrust under the upper lid and the contents squeezed out. Lime opacities of the cornea have been found by Guillery to be due to albuminate of calcium, which is soluble in chloride of ammonium. He recommends eye-baths daily of a two per cent. solution. A new organic silver salt—silver vitelline—contains thirty per cent. silver, twice the quantity of any other organic silver compound. Hetol solution (one per cent.) in subconjunctival injections exceeded Pflueger's expectations in herpes corneæ, deep ulcer of the cornea and uveitis. In serpiginous ulcer of the cornea due to the pneumococcus, Roehmer recommends pneumococcic serum. Attanasio has found Marmorek's antistreptococcic serum of marvelous efficacy in the following conditions: Orbital periostitis, ocular phlegmon, phlegmonous dacryocystitis, acute trachoma, muco-purulent, purulent and pseudo-membranous conjunctivitis, hypopyon keratitis, traumatic iridocyclitic, post-operative infections in cataract extractions.

PHYSIOLOGY.—Laus found that, contrary to the general belief, desiccation of the corneal epithelium is not the cause of winking which is brought about by cooling of the surface, and secondarily by light irritation. Gatti's researches on the living frog show that 20° C., which is the optimum for the effective action of the heart, is likewise the optimum for the production of visual purple. Herzfeld observed a case where, despite paralysis of both facial nerves, relaxation of the tonus of the smooth muscle of Mueller and the

smooth muscle fibers of Tenon's capsule permitted, during sleep, complete closure of the palpebral fissures. Spiller's examination of the brain in an idiot, aged twenty-two, with complete absence of the visual system, led him to the following conclusions: (1) The chief "primary" optic center is the external geniculate body; (2) the pulvinar of the optic thalamus is also an important "primary" optic center; (3) the anterior colliculus of the quadrigeminal body in man has an unimportant relation to vision; (4) the subthalmic body, the habenula, the internal geniculate body probably are not part of the visual system; (5) the cortex of the calcarine fissure may contain nearly the normal number of cell bodies, even though the visual system may be undeveloped; (6) the nerves to the ocular muscles and their nuclei may be developed even though the visual system is absent; (7) congenital spastic paraplegia may be the result of deficient formation as regards number or size of the neurones of the central motor system, even though such a deficiency may be difficult to detect by the microscope.

Pathology.—Birch-Hirschfeld, in a study of the pathogenesis of alcohol amblyopia, finds marked uniform changes in the ganglion cell layer of the retina, which probably indicates a direct influence of the poison on these cells. Later the optic nerve shows degenerated fibers, the degeneration being independent of the changes in the retina.

Eye and Nose.—According to Lapersonne, oculo-orbital complications occur in twenty per cent of inflammations of the nasal sinuses.

The Eye in General Disease.—Lawford, in discussing the relation of gonorrhea to disease of the eye (excluding purulent ophthalmia), says that gonococci are never found in the eyeball. Ocular affections in conjunction with gonorrhea are metastatic conjunctivitis, scleritis and episcleritis, iritis, irido-cyclitis and neuro-retinitis. Iritis may occur without arthritis or endocarditis. In forty per cent gastric cancers Pick has noted greyish plaques and hemorrhages in the retina and edema of the optic nerve head. Toxemia is assigned as the cause. Jocqs reports three cases of hemianopic contraction of the fields in tabetics (instead of the usual concentric contraction). In such cases vision remains good until the involvement of the fixation point, when loss is rapid.

In myasthenia gravis Gowers notes varying involvement of the laterally acting ocular muscles at different times. Especially noteworthy is the partial escape of the downward acting muscles. There is ptosis and weakness of the orbicularis palpebrarum; the light reflex is perfect. Trousseau believes that *bilateral* exophthalmos is no longer indispensable to the diagnosis of Basedow's disease. In twelve cases of bubonic plague Maynard observed ophthalmic complications as follows: hazy and sloughing cornea, iritis and scleral staphyloma.

Puech notes an arthritis affecting especially the knee-joints in the interstitial keratitis of hereditary syphilis, and believes this symptom should be added to the triad of Hutchinson. Kalt affirms that iritis, keratitis and chorio-retinitis, in addition to the classical type of neurokeratitis, may supervene in lesions of the Gasserian ganglion.

Permanent myopia developing in diabetes is due, according to Van der Burgh, to swelling of the lens, thus increasing the curvature of its surfaces. Unequal amounts of sugar in the aqueous and lens or vitreous is thought to account for transient myopia during the glycosuric stage of diabetes.

In neurasthenia and hysteria, Koenigshoefer has noted inability steadily to

fix an object at any distance. There is diminution in the range of binocular accommodation, homonymous diplopia for distant objects, and crossed diplopia when the object is brought very near. He calls the condition "convergence rigidity." Greef emphasizes the importance of the tube-shaped (rohrenformiges) visual field in the diagnosis of hysteria.

MISCELLANEOUS.—Trantes effected a cure in from twenty-four to forty-eight hours in forty cases of essential hemeralopia by feeding with boiled or roasted liver. From six hundred to eight hundred grams were given. Lederer, in discussing traumatic exophthalmos, believes that the retraction of the globe is due to cicatricial contraction consequent upon hemorrhage and tearing of the orbital tissues.

Fromaget reports the second case on record of fibrochondroma of the orbit. It was removed through the upper cul-de-sac with preservation of the globe: V=⅔. Shortly after being photographed by magnesium flash a patient of Graefe's developed bilateral mydriasis, paralysis of the left abducens and lens changes. The preparation, by explosion, developed oxide and dioxide of chlorine both of which are very poisonous.

Rascalon relates a case of pulsating exophthalmos cured by prolonged compression of the common carotid artery.

Posey calls attention to transient monocular blindness, due in all probability to spasm of the retinal arteries. In general the prognosis is good, though some cases have finally become permanently blind. The new method of Wingen to test the illumination in schools is described by Cohn. Aristo-paper is placed on all the desks of the room for one hour and compared with a paper placed on a desk which is known to be adequately illuminated (as tested by the photometer). The papers are then "fixed" and serve as a permanent record of the illumination of each desk. Wuerdemann brings forward the fact that the physiological and earning limitations of central acuteness of vision are not identical, and recommends that estimation of ocular damage should be made with this difference in view.

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EDITORIAL COMMENT.

MEDICAL PROGRESS NUMBER.

In attempting to chronicle the most noteworthy advances of the year just closed, our efforts have been specially directed to the needs of the busy practitioner—the doctor whose time is so engrossed by his professional duties that he is utterly unable to keep up with medical progress as noted in our abstracts from month to month. Here he finds the leading investigations spread out before him, and in the midst of his busy life can acquaint himself with the gist of the year's offerings, no matter what be the special field in which he is interested. We shall feel well repaid for our labor on the special progress number if we have brought to the notice of a fair number of the profession a knowledge of the advances which otherwise would not have been theirs.

An effort of this kind is unusual in medical journalism. It would have been far easier to print a number of original articles than to complete a review of the contributions offered during the past year, and this departure is only possible in a journal like the INTERSTATE, which supplies its staff editors, each of whom is in absolute control of his department, with all the literature appertaining to the various specialties published in this country and abroad.

We do not claim to have touched upon all that was new in 1902, nor to have excluded all that is of little value. It is not possible in the space at our command to review everything, and, besides, the inclination is always strong to give prominence to that which interests the collaborator most, but each has tried to give an impartial resume of what seemed to him the most valuable productions of the past twelve months.

We believe a complete resume of the year's work, when presented in a concise form, is of sufficient importance to justify us in making this departure a

permanent feature of our publication, and in future our January number will be devoted to this work.

A CLINICAL FIASCO.

Whenever there is a slight stagnation in the progress of medical science, some enterprising and sincere benefactor of the human race disturbs the calm by a tumultuous explosion of energy. Unfortunately, it is intensified when the inventive genius of the newspapers is called into play. It has recently been announced, ostensibly through proper channels, that lemon juice dropped upon a culture of typhoid bacilli, in a test-tube, succeeded in killing the micro-organisms within a comparatively brief time. It is far from our intention to refute this statement in the slightest degree, neither do we doubt but that the bacilli were killed in the test-tube. But, unfortunately, a great part of the public has been made to believe that the juice of the lemon really possesses such bactericidal properties as to cure enteric fever. If all experiments that were successfully performed outside of the human body could be successfully applied within the human body, there would be many diseases susceptible of more speedy and thorough alleviation. It is a common sight in drug stores to see test-tubes of food which is claimed to have been digested by this or that drug, yet such results are far from being obtained after the internal administration of the remedy. But in the case of lemon juice as to the treatment of typhoid fever, there are even more scientific objections. It is so well known to every student of medicine that the bacillus of enteric fever does not exclusively affect the alimentary tract, that it is hardly worth mentioning, but it is necessary to remark, in order to show how purely local the effect of lemon juice would be. In the first place, considering the period of incubation of typhoid fever, the disease would be so disseminated throughout the organism that lemon juice could hardly reach it in time to be effective. The typhoid bacilli being not only located in and about the ulcers in the intestines, but also in the blood, spleen and bone marrow, it is obvious through what channels and with what rapidity the medicament would have to be transmitted. But similar experiments have been made before, and even in the case of typhoid fever. There are those who still would have us believe that the disease is curable by the administration of intestinal antiseptics, just as there are those who still teach that intestinal hemorrhage can be controlled by the administration of hemostatic drugs. The latter contention can only be proved if it can be shown that a certain kind of a drug administered by the mouth will exactly come in contact with the bleeding vessel in the intestine, and as yet we know of no drug which can be directed with such accuracy. Likewise in the case of lemon juice; unless it can be shown that it can reach the foci of infection, remain long enough in contact with them to kill all of the bacilli, and that, furthermore, it can be absorbed into the circulation unchanged and reach each and every focus of infection throughout the human organism, the result of these experiments performed outside of the human body cannot be represented either as scientific facts or the slightest advancement in the treatment of disease. Yet we do not underestimate the sincerity of the experimenter nor his intentions to contribute to the welfare of mankind and the alleviation of human suffering. He who has experimented with a drug and found it wanting, has not labored in vain.